

1/3

Krishnan 09/936,891

08/31/2004

=> fil zcaplus

FILE 'ZCAPLUS' ENTERED AT 15:28:16 ON 30 AUG 2004  
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FILE COVERS 1907 - 30 Aug 2004 VOL 141 ISS 10  
FILE LAST UPDATED: 29 Aug 2004 (20040829/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> fil hcaplus

FILE 'HCAPLUS' ENTERED AT 15:28:21 ON 30 AUG 2004  
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FILE COVERS 1907 - 30 Aug 2004 VOL 141 ISS 10  
FILE LAST UPDATED: 29 Aug 2004 (20040829/ED)

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=> fil wpix

FILE 'WPIX' ENTERED AT 15:28:24 ON 30 AUG 2004  
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FILE LAST UPDATED: 26 AUG 2004 <20040826/UP>  
MOST RECENT DERWENT UPDATE: 200455 <200455/DW>  
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE,

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[<<<](http://www.stn-international.de/training_center/patents/stn_guide.pdf)

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DOCUMENTATION NOW AVAILABLE IN DERWENT WORLD PATENTS INDEX  
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>>> NEW DISPLAY FORMAT HITSTR ADDED ALLOWING DISPLAY OF  
HIT STRUCTURES WITHIN THE BIBLIOGRAPHIC DOCUMENT <<<

=> fil medlin

FILE 'MEDLINE' ENTERED AT 15:28:29 ON 30 AUG 2004

FILE LAST UPDATED: 28 AUG 2004 (20040828/UP). FILE COVERS 1951 TO DATE.

On February 29, 2004, the 2004 MeSH terms were loaded. See HELP RLOAD  
for details. OLDMEDLINE now back to 1951.

MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the  
MeSH 2004 vocabulary. See <http://www.nlm.nih.gov/mesh/> and  
[http://www.nlm.nih.gov/pubs/techbull/nd03/nd03\\_mesh.html](http://www.nlm.nih.gov/pubs/techbull/nd03/nd03_mesh.html) for a  
description of changes.

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substance identification.

=> fil embase

FILE 'EMBASE' ENTERED AT 15:28:34 ON 30 AUG 2004

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FILE COVERS 1974 TO 26 Aug 2004 (20040826/ED)

EMBASE has been reloaded. Enter HELP RLOAD for details.

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=> fil biosis

FILE 'BIOSIS' ENTERED AT 15:28:38 ON 30 AUG 2004

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FILE COVERS 1969 TO DATE.  
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT  
FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 26 August 2004 (20040826/ED)

FILE RELOADED: 19 October 2003.

=> fil uspatfull

FILE 'USPATFULL' ENTERED AT 15:28:44 ON 30 AUG 2004  
CA INDEXING COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

FILE COVERS 1971 TO PATENT PUBLICATION DATE: 26 Aug 2004 (20040826/PD)  
FILE LAST UPDATED: 26 Aug 2004 (20040826/ED)

HIGHEST GRANTED PATENT NUMBER: US6782553

HIGHEST APPLICATION PUBLICATION NUMBER: US2004168243

CA INDEXING IS CURRENT THROUGH 26 Aug 2004 (20040826/UPCA)

ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 26 Aug 2004 (20040826/PD)

REVISED CLASS FIELDS (/NCL) LAST RELOADED: Jun 2004

USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Jun 2004

>>> USPAT2 is now available. USPATFULL contains full text of the <<<  
>>> original, i.e., the earliest published granted patents or <<<  
>>> applications. USPAT2 contains full text of the latest US <<<  
>>> publications, starting in 2001, for the inventions covered in <<<  
>>> USPATFULL. A USPATFULL record contains not only the original <<<  
>>> published document but also a list of any subsequent <<<  
>>> publications. The publication number, patent kind code, and <<<  
>>> publication date for all the US publications for an invention <<<  
>>> are displayed in the PI (Patent Information) field of USPATFULL <<<  
>>> records and may be searched in standard search fields, e.g., /PN, <<<  
>>> /PK, etc. <<<

>>> USPATFULL and USPAT2 can be accessed and searched together <<<  
>>> through the new cluster USPATALL. Type FILE USPATALL to <<<  
>>> enter this cluster. <<<

>>> <<<  
>>> Use USPATALL when searching terms such as patent assignees, <<<  
>>> classifications, or claims, that may potentially change from <<<  
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=> fil pctfull

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FILE LAST UPDATED: 25 AUG 2004 <20040825/UP>  
MOST RECENT UPDATE WEEK: 200434 <200434/EW>  
FILE COVERS 1978 TO DATE

>>> As of update 01/2004 the Designated States field (DS)  
has been enhanced to accommodate additional information  
provided by WIPO pertaining to application kind for  
regional and international designated states. Due to the  
change in DS display format postprocessing the data may  
be affected but search and SDI procedures will not have  
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See HELP CHANGE for further information <<<

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=> FIL STNGUIDE

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 AND TECHNOLOGY CORPORATION, AND FACHINFORMATIONSZENTRUM KARLSRUHE

FILE CONTAINS CURRENT INFORMATION.  
 LAST RELOADED: Aug 27, 2004 (20040827/UP).

=> d que 183

L1	1 SEA FILE=HCAPLUS ABB=ON	PLU=ON	US2001-936891/AP, PRN
L2	1 SEA FILE=HCAPLUS ABB=ON	PLU=ON	WO2000-EP02351/AP, PRN
L3	1 SEA FILE=HCAPLUS ABB=ON	PLU=ON	(L1 OR L2)
L6	TRANSFER PLU=ON	L3 1- RN :	22 TERMS
L7	22 SEA FILE=REGISTRY ABB=ON	PLU=ON	L6
L8	5 SEA FILE=REGISTRY ABB=ON	PLU=ON	(7440-02-0 OR 7440-05-3 OR 7440-16-6 OR 7440-18-8 OR 7440-50-8)/RN
L9	1 SEA FILE=REGISTRY ABB=ON	PLU=ON	7440-06-4/RN
L10	6 SEA FILE=REGISTRY ABB=ON	PLU=ON	(L8 OR L9)
L11	16 SEA FILE=REGISTRY ABB=ON	PLU=ON	L7 NOT L10
L15	78072 SEA FILE=HCAPLUS ABB=ON	PLU=ON	"OXIDATION CATALYSTS"+NT/CT
L16	22 SEA FILE=HCAPLUS ABB=ON	PLU=ON	"OXYGENATION CATALYSTS"+NT/CT
L17	61244 SEA FILE=HCAPLUS ABB=ON	PLU=ON	"REDUCTION CATALYSTS"+NT/CT
L18	37966 SEA FILE=HCAPLUS ABB=ON	PLU=ON	"HYDROGENATION CATALYSTS"+NT/C T
L19	4015 SEA FILE=HCAPLUS ABB=ON	PLU=ON	"AMINATION CATALYSTS"+NT/CT
L25	1 SEA FILE=REGISTRY ABB=ON	PLU=ON	7782-44-7/RN
L26	15 SEA FILE=REGISTRY ABB=ON	PLU=ON	L11 NOT L25
L33	809230 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L10
L34	95588 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L33 (L) CAT/RL
L61	86071 SEA FILE=HCAPLUS ABB=ON	PLU=ON	?POLYMER? (1W) (?COAT? OR ?STABIL? OR ?PROTECT?)
L62	646 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L33 (L) L61
L63	95 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L62 AND L34
L69	2404257 SEA FILE=HCAPLUS ABB=ON	PLU=ON	(?CARBOHYDRAT? OR ?ALCOHOL? OR ?ALDEHYD? OR ?POLYHYDROXY? OR ?POLYPHENOL?)
L71	85 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L63 AND (AY<2001 OR PY<2001 OR PRY<2001)
L72	6 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L71 AND (L15 OR L16)
L73	43 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L71 AND L17
L74	39 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L71 AND L18
L75	0 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L71 AND L19
L76	1 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L71 AND (?REDUC? (5A) ?AMINATION?)
L77	46 SEA FILE=HCAPLUS ABB=ON	PLU=ON	(L72 OR L73 OR L74 OR L75 OR L76)
L78	20 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L69 AND L77
L79	1 SEA FILE=REGISTRY ABB=ON	PLU=ON	9003-39-8/RN
L80	14 SEA FILE=REGISTRY ABB=ON	PLU=ON	L26 NOT L79
L81	252956 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L80
L82	1 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L81 AND L77
L83	20 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L78 OR L82

=> d que 197

L8	5 SEA FILE=REGISTRY ABB=ON	PLU=ON	(7440-02-0 OR 7440-05-3 OR 7440-16-6 OR 7440-18-8 OR 7440-50-8)/RN
L9	1 SEA FILE=REGISTRY ABB=ON	PLU=ON	7440-06-4/RN
L10	6 SEA FILE=REGISTRY ABB=ON	PLU=ON	(L8 OR L9)
L15	78072 SEA FILE=HCAPLUS ABB=ON	PLU=ON	"OXIDATION CATALYSTS"+NT/CT

L16 22 SEA FILE=HCAPLUS ABB=ON PLU=ON "OXYGENATION CATALYSTS"+NT/CT  
 L17 61244 SEA FILE=HCAPLUS ABB=ON PLU=ON "REDUCTION CATALYSTS"+NT/CT  
 L18 37966 SEA FILE=HCAPLUS ABB=ON PLU=ON "HYDROGENATION CATALYSTS"+NT/C  
     T  
 L19 4015 SEA FILE=HCAPLUS ABB=ON PLU=ON "AMINATION CATALYSTS"+NT/CT  
 L33 809230 SEA FILE=HCAPLUS ABB=ON PLU=ON L10  
 L34 95588 SEA FILE=HCAPLUS ABB=ON PLU=ON L33 (L) CAT/RL  
 L61 86071 SEA FILE=HCAPLUS ABB=ON PLU=ON ?POLYMER? (1W) (?COAT? OR  
     ?STABIL? OR ?PROTECT?)  
 L62 646 SEA FILE=HCAPLUS ABB=ON PLU=ON L33 (L) L61  
 L63 95 SEA FILE=HCAPLUS ABB=ON PLU=ON L62 AND L34  
 L71 85 SEA FILE=HCAPLUS ABB=ON PLU=ON L63 AND (AY<2001 OR PY<2001  
     OR PRY<2001)  
 L72 6 SEA FILE=HCAPLUS ABB=ON PLU=ON L71 AND (L15 OR L16)  
 L73 43 SEA FILE=HCAPLUS ABB=ON PLU=ON L71 AND L17  
 L74 39 SEA FILE=HCAPLUS ABB=ON PLU=ON L71 AND L18  
 L75 0 SEA FILE=HCAPLUS ABB=ON PLU=ON L71 AND L19  
 L76 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L71 AND (?REDUC? (5A)  
     ?AMINATION?)  
 L77 46 SEA FILE=HCAPLUS ABB=ON PLU=ON (L72 OR L73 OR L74 OR L75 OR  
     L76)  
 L84 39 SEA FILE=HCAPLUS ABB=ON PLU=ON L71 NOT L77  
 L85 38 SEA FILE=HCAPLUS ABB=ON PLU=ON L84 NOT (SPIN LATTICE)/ST  
 L86 32 SEA FILE=HCAPLUS ABB=ON PLU=ON L85 NOT (CARBON BLACK?/CW)  
 L87 30 SEA FILE=HCAPLUS ABB=ON PLU=ON L86 NOT (CARBON FIBERS/CW)  
 L88 28 SEA FILE=HCAPLUS ABB=ON PLU=ON L87 NOT AMINOPLAST/TI, ST  
 L89 28 SEA FILE=HCAPLUS ABB=ON PLU=ON L88 NOT (POLYMER ELECTROLYTE)/  
     TI  
 L90 27 SEA FILE=HCAPLUS ABB=ON PLU=ON L89 NOT VEHICLES/TI  
 L91 25 SEA FILE=HCAPLUS ABB=ON PLU=ON L90 NOT SILICONE/TI  
 L92 24 SEA FILE=HCAPLUS ABB=ON PLU=ON L91 NOT ("TWO-COMPONENT")/TI  
 L93 23 SEA FILE=HCAPLUS ABB=ON PLU=ON L92 NOT ULTRAFINE/TI  
 L94 22 SEA FILE=HCAPLUS ABB=ON PLU=ON L93 NOT ("WATER ELECTROLYSIS")/  
     /TI  
 L95 21 SEA FILE=HCAPLUS ABB=ON PLU=ON L94 NOT GRAFTED/TI  
 L96 20 SEA FILE=HCAPLUS ABB=ON PLU=ON L95 NOT NAPHTHOMELANINS/TI  
 L97 20 SEA FILE=HCAPLUS ABB=ON PLU=ON L96 NOT STACKS/TI

=> d que l158

L1 1 SEA FILE=HCAPLUS ABB=ON PLU=ON US2001-936891/AP, PRN  
 L2 1 SEA FILE=HCAPLUS ABB=ON PLU=ON WO2000-EP02351/AP, PRN  
 L3 1 SEA FILE=HCAPLUS ABB=ON PLU=ON (L1 OR L2)  
 L6 TRANSFER PLU=ON L3 1- RN : 22 TERMS  
 L7 22 SEA FILE=REGISTRY ABB=ON PLU=ON L6  
 L8 5 SEA FILE=REGISTRY ABB=ON PLU=ON (7440-02-0 OR 7440-05-3 OR  
     7440-16-6 OR 7440-18-8 OR 7440-50-8)/RN  
 L9 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-06-4/RN  
 L10 6 SEA FILE=REGISTRY ABB=ON PLU=ON (L8 OR L9)  
 L11 16 SEA FILE=REGISTRY ABB=ON PLU=ON L7 NOT L10  
 L15 78072 SEA FILE=HCAPLUS ABB=ON PLU=ON "OXIDATION CATALYSTS"+NT/CT  
 L16 22 SEA FILE=HCAPLUS ABB=ON PLU=ON "OXYGENATION CATALYSTS"+NT/CT  
  
 L17 61244 SEA FILE=HCAPLUS ABB=ON PLU=ON "REDUCTION CATALYSTS"+NT/CT  
 L18 37966 SEA FILE=HCAPLUS ABB=ON PLU=ON "HYDROGENATION CATALYSTS"+NT/C  
     T  
 L19 4015 SEA FILE=HCAPLUS ABB=ON PLU=ON "AMINATION CATALYSTS"+NT/CT  
 L25 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7782-44-7/RN  
 L26 15 SEA FILE=REGISTRY ABB=ON PLU=ON L11 NOT L25

L33	809230	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L10
L34	95588	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L33 (L) CAT/RL
L61	86071	SEA FILE=HCAPLUS ABB=ON	PLU=ON	?POLYMER? (1W) (?COAT? OR ?STABIL? OR ?PROTECT?)
L62	646	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L33 (L) L61
L63	95	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L62 AND L34
L69	2404257	SEA FILE=HCAPLUS ABB=ON	PLU=ON	(?CARBOHYDRAT? OR ?ALCOHOL? OR ?ALDEHYD? OR ?POLYHYDROXY? OR ?POLYPHENOL?)
L71	85	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L63 AND (AY<2001 OR PY<2001 OR PRY<2001)
L72	6	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L71 AND (L15 OR L16)
L73	43	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L71 AND L17
L74	39	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L71 AND L18
L75	0	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L71 AND L19
L76	1	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L71 AND (?REDUC? (5A) ?AMINATION?)
L77	46	SEA FILE=HCAPLUS ABB=ON	PLU=ON	(L72 OR L73 OR L74 OR L75 OR L76)
L78	20	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L69 AND L77
L79	1	SEA FILE=REGISTRY ABB=ON	PLU=ON	9003-39-8/RN
L80	14	SEA FILE=REGISTRY ABB=ON	PLU=ON	L26 NOT L79
L81	252956	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L80
L82	1	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L81 AND L77
L83	20	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L78 OR L82
L84	39	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L71 NOT L77
L85	38	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L84 NOT (SPIN LATTICE)/ST
L86	32	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L85 NOT (CARBON BLACK?/CW)
L87	30	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L86 NOT (CARBON FIBERS/CW)
L88	28	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L87 NOT AMINOPLAST/TI,ST
L89	28	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L88 NOT (POLYMER ELECTROLYTE)/ TI
L90	27	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L89 NOT VEHICLES/TI
L91	25	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L90 NOT SILICONE/TI
L92	24	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L91 NOT ("TWO-COMPONENT")/TI
L93	23	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L92 NOT ULTRAFINE/TI
L94	22	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L93 NOT ("WATER ELECTROLYSIS")/ TI
L95	21	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L94 NOT GRAFTED/TI
L96	20	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L95 NOT NAPHTHOMELANINS/TI
L97	20	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L96 NOT STACKS/TI
L140	45	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L71 NOT (L83 OR L97)
L141	5	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L140 AND (?OXIDAT? OR ?OXIDIZ?)
L142	1	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L141 AND (ORGANIC COMPOUNDS)/T I
L143	11	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L140 AND ?REDUC?
L144	1	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L143 AND METHYLCINNAMATE/ST
L145	1	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L143 AND (NOBLE METAL)/TI
L146	1	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L143 AND NANoclusters/TI
L147	1	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L143 AND RHODIUM/TI
L148	1	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L143 AND REVIEW/ST
L149	5	SEA FILE=HCAPLUS ABB=ON	PLU=ON	(L144 OR L145 OR L146 OR L147 OR L148)
L150	5	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L143 AND L149
L151	24	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L140 AND HYDROGENAT?
L152	1	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L151 AND REVIEW/ST
L153	1	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L151 AND GLASSY/ST
L154	1	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L151 AND METHYLCINNAMATE/ST
L155	1	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L151 AND (KETO ESTER)/ST

L156           4 SEA FILE=HCAPLUS ABB=ON PLU=ON (L152 OR L153 OR L154 OR  
L155) AND L151  
L157           0 SEA FILE=HCAPLUS ABB=ON PLU=ON L140 AND AMINAT?  
L158           8 SEA FILE=HCAPLUS ABB=ON PLU=ON L142 OR L150 OR L156 OR L157

=> fil hcaplus

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FILE COVERS 1907 - 30 Aug 2004 VOL 141 ISS 10  
FILE LAST UPDATED: 29 Aug 2004 (20040829/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s 183 or 197 or 1158  
L159           48 L83 OR L97 OR L158

=> FIL HOME

FILE 'HOME' ENTERED AT 15:30:31 ON 30 AUG 2004

=> FIL STNGUIDE

FILE 'STNGUIDE' ENTERED AT 15:30:35 ON 30 AUG 2004  
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FILE CONTAINS CURRENT INFORMATION.  
LAST RELOADED: Aug 27, 2004 (20040827/UP).

=> d que 1106  
L98           818 SEA FILE=WPIX ABB=ON PLU=ON B01J031-06/IPC  
L99           48850 SEA FILE=WPIX ABB=ON PLU=ON N02/MC  
L100           174 SEA FILE=WPIX ABB=ON PLU=ON L98 AND L99  
L101           6957 SEA FILE=WPIX ABB=ON PLU=ON ((?POLYMER? OR ?POLY MER? OR POL  
YMER?) (1W) (?COATED OR ?PROTECT? OR ?STABILIZE? OR PROTECT?  
OR ?STABL? OR STA BIL?))/BIX  
L102           7 SEA FILE=WPIX ABB=ON PLU=ON L100 AND L101  
L103           6 SEA FILE=WPIX ABB=ON PLU=ON L102 NOT 1984-020471/AN  
L104           599 SEA FILE=WPIX ABB=ON PLU=ON ((?POLYMER? OR ?POLY MER? OR POL  
YMER?) (1W) (?COLLOID? OR COLLOID? OR ?COLL OID?))/BIX  
L105           2 SEA FILE=WPIX ABB=ON PLU=ON L100 AND L104

L106 7 SEA FILE=WPIX ABB=ON PLU=ON L103 OR L105

```
=> d que l113
L8      5 SEA FILE=REGISTRY ABB=ON PLU=ON (7440-02-0 OR 7440-05-3 OR
        7440-16-6 OR 7440-18-8 OR 7440-50-8)/RN
L9      1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-06-4/RN
L10     6 SEA FILE=REGISTRY ABB=ON PLU=ON (L8 OR L9)
L107    158213 SEA L10
L108    2790 SEA (?POLYMER? OR ?POLY MER? OR POL YMER?) (1W) (?COATED OR
        ?PROTECT? OR ?STABILIZE? OR PROTECT? OR ?STABL? OR STA BIL?)
L109    228 SEA (?POLYMER? OR ?POLY MER? OR POL YMER?) (1W) (?COLLOID? OR
        COL LOID? OR ?COLL OID?)
L110    37 SEA L107 AND ((L108 OR L109))
L111    172273 SEA ?CATALYS?
L112    8 SEA L110 AND L111
L113    8 DUP REM L112 (0 DUPLICATES REMOVED)
```

```
=> d que l119
L1      1 SEA FILE=HCAPLUS ABB=ON PLU=ON US2001-936891/AP,PRN
L2      1 SEA FILE=HCAPLUS ABB=ON PLU=ON WO2000-EP02351/AP,PRN
L3      1 SEA FILE=HCAPLUS ABB=ON PLU=ON (L1 OR L2)
L6      TRANSFER PLU=ON L3 1- RN : 22 TERMS
L7      22 SEA FILE=REGISTRY ABB=ON PLU=ON L6
L8      5 SEA FILE=REGISTRY ABB=ON PLU=ON (7440-02-0 OR 7440-05-3 OR
        7440-16-6 OR 7440-18-8 OR 7440-50-8)/RN
L9      1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-06-4/RN
L10     6 SEA FILE=REGISTRY ABB=ON PLU=ON (L8 OR L9)
L11     16 SEA FILE=REGISTRY ABB=ON PLU=ON L7 NOT L10
L25     1 SEA FILE=REGISTRY ABB=ON PLU=ON 7782-44-7/RN
L26     15 SEA FILE=REGISTRY ABB=ON PLU=ON L11 NOT L25
L79     1 SEA FILE=REGISTRY ABB=ON PLU=ON 9003-39-8/RN
L80     14 SEA FILE=REGISTRY ABB=ON PLU=ON L26 NOT L79
L116    11388 SEA FILE=USPATFULL ABB=ON PLU=ON (((?POLYMER? OR ?POLY MER?
        OR POL YMER?) (1W) (?COATED OR ?PROTECT? OR ?STABILIZE? OR PRO
        TECT? OR ?STABL? OR STA BIL? OR ?COLLOID? OR COL LOID? OR
        ?COLL OID?)) AND ?CATALY?)/BI,IT
L117    557 SEA FILE=USPATFULL ABB=ON PLU=ON L116 AND L10
L118    20 SEA FILE=USPATFULL ABB=ON PLU=ON L117 AND L80
L119    20 SEA FILE=USPATFULL ABB=ON PLU=ON L118 AND (PY<2001 OR
        PRY<2001 OR AY<2001)
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=> d que l139
L122    70600 SEA FILE=PCTFULL ABB=ON PLU=ON (NI OR NICKEL OR PD OR
        PALLADIUM OR RH OR RHODIUM OR RU OR RUTHENIUM OR CU OR COPPER
        OR PT OR PLATINUM) (L) ?CATALY?
L126    83374 SEA FILE=PCTFULL ABB=ON PLU=ON (FRUCTOSE OR XYLOSE OR
        LACTOSE OR MALTOSE OR ISOMALTOSA OR TREHALULOSE OR GLUCOSE OR
        SACCHAROSE OR SORBOSE OR DODECYLAMIN? OR ISOMALTULOSE)
L128    266159 SEA FILE=PCTFULL ABB=ON PLU=ON (?REDUCTION? OR HYDROGENAT?
        OR ?OXIDA? OR ?REDUCTIV? ?AMIN? OR ?REDUCTIV? (1W) ?AMIN? )
L130    47 SEA FILE=PCTFULL ABB=ON PLU=ON B01J031-06/IPC
L132    78 SEA FILE=PCTFULL ABB=ON PLU=ON (C07B033 OR C07B031)/IPC
L134    125 SEA FILE=PCTFULL ABB=ON PLU=ON L130 OR L132
L136    73 SEA FILE=PCTFULL ABB=ON PLU=ON L134 AND L122
L137    59 SEA FILE=PCTFULL ABB=ON PLU=ON L136 AND L128
L138    7 SEA FILE=PCTFULL ABB=ON PLU=ON L137 AND L126
L139    5 SEA FILE=PCTFULL ABB=ON PLU=ON L138 AND (AY<2001 OR PY<2001)
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OR PRY&lt;2001)

=&gt; dup rem l159 l106 l113 l119 l139

FILE 'HCAPLUS' ENTERED AT 15:31:39 ON 30 AUG 2004  
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PROCESSING COMPLETED FOR L159

PROCESSING COMPLETED FOR L106

PROCESSING COMPLETED FOR L113

PROCESSING COMPLETED FOR L119

PROCESSING COMPLETED FOR L139

L160 85 DUP REM L159 L106 L113 L119 L139 (3 DUPLICATES REMOVED)

ANSWERS '1-48' FROM FILE HCAPLUS

ANSWERS '49-54' FROM FILE WPIX

ANSWERS '55-60' FROM FILE EMBASE

ANSWERS '61-80' FROM FILE USPATFULL

ANSWERS '81-85' FROM FILE PCTFULL

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L83 ANSWER 1 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:666737 HCAPLUS

DOCUMENT NUMBER: 133:254142

TITLE: Catalytic method for modifying carbohydrates,  
 , alcohols, aldehydes or  
 polyhydroxy compounds

INVENTOR: Canan Emine; Hahnlein, Marc Sascha; Prusse, Ulf;  
 , Klaus-Dieter; Haji Begli, Alireza

PATENT: ker Aktiengesellschaft, Germany  
 SOURCE: t. Appl., 45 pp.

DOCUMEN PIXXD2

LANGUAG

FAMILY

PATENT

*Applicants*

PATENT NO.	DATE	APPLICATION NO.	DATE
WO 2000055165	A1	20000921	WO 2000-EP2351
W: AU, CA, IL, US			20000316 <--
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,			
PT, SE			
DE 19911504	A1	20001019	DE 1999-19911504
EP 1165580	A1	20020102	EP 2000-925117
EP 1165580	B1	20030702	20000316 <--

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, FI

AU 747812	B2	20020523	AU 2000-43953	20000316 <--
AT 244256	E	20030715	AT 2000-925117	20000316 <--
PT 1165580	T	20031128	PT 2000-925117	20000316 <--
ES 2202115	T3	20040401	ES 2000-925117	20000316 <--
US 2003139594	A1	20030724	US 2003-340913	20030110 <--
US 2004002597	A1	20040101	US 2003-340901	20030110 <--
PRIORITY APPLN. INFO.:			DE 1999-19911504	A 19990316 <--
			WO 2000-EP2351	W 20000316 <--
			US 2001-936891	A3 20011019

IT 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses  
7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses  
7440-50-8, Copper, uses

RL: CAT (Catalyst use); USES (Uses)  
(chemical conversion of carbohydrates, alcs.,  
aldehydes or polyhydroxy compds. in presence of  
polymer-stabilized metal nanoparticle catalysts)

RN 7440-02-0 HCAPLUS

CN Nickel (8CI, 9CI) (CA INDEX NAME)

## Ni

RN 7440-05-3 HCAPLUS

CN Palladium (8CI, 9CI) (CA INDEX NAME)

## Pd

RN 7440-16-6 HCAPLUS

CN Rhodium (8CI, 9CI) (CA INDEX NAME)

## Rh

RN 7440-18-8 HCAPLUS

CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

## Ru

RN 7440-50-8 HCAPLUS

CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

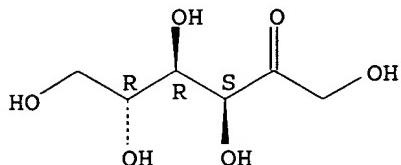
## Cu

IT 57-48-7, Fructose, processes 58-86-6, Xylose, processes  
63-42-3, Lactose 69-79-4, Maltose 499-40-1,  
Isomaltose 51411-23-5, Trehalulose

RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(chemical conversion of carbohydrates, alcs.,  
aldehydes or polyhydroxy compds. in presence of  
polymer-stabilized metal nanoparticle catalysts)

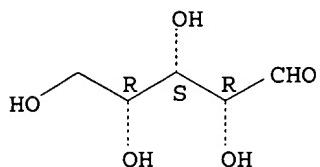
RN 57-48-7 HCAPLUS  
 CN D-Fructose (9CI) (CA INDEX NAME)

Absolute stereochemistry.



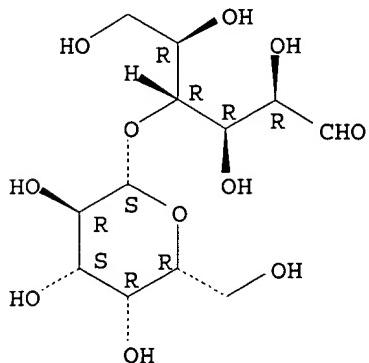
RN 58-86-6 HCAPLUS  
 CN D-Xylose (9CI) (CA INDEX NAME)

Absolute stereochemistry.



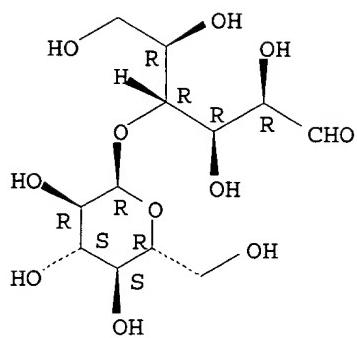
RN 63-42-3 HCAPLUS  
 CN D-Glucose, 4-O- $\beta$ -D-galactopyranosyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



RN 69-79-4 HCAPLUS  
 CN D-Glucose, 4-O- $\alpha$ -D-glucopyranosyl- (6CI, 9CI) (CA INDEX NAME)

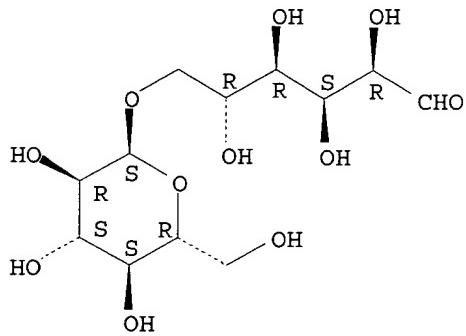
Absolute stereochemistry.



RN 499-40-1 HCAPLUS

CN D-Glucose, 6-O- $\alpha$ -D-glucopyranosyl- (6CI, 9CI) (CA INDEX NAME)

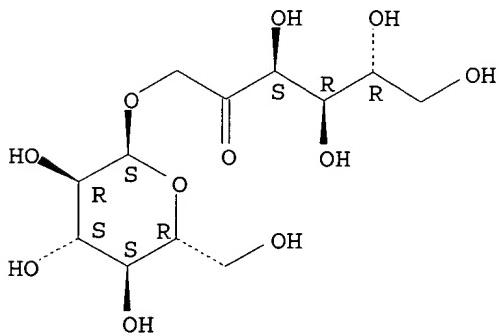
Absolute stereochemistry.



RN 51411-23-5 HCAPLUS

CN D-Fructose, 1-O- $\alpha$ -D-glucopyranosyl- (6CI, 9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT 133634-68-1P 133634-69-2P 150787-99-8P

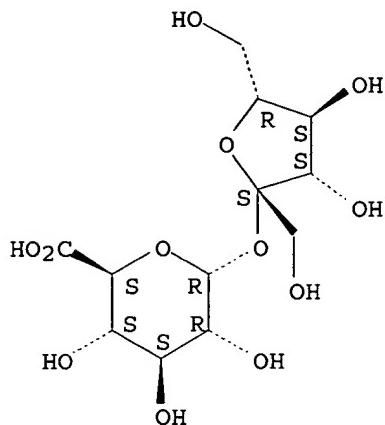
RL: SPN (Synthetic preparation); PREP (Preparation)  
 (chemical conversion of carbohydrates, alcs.,  
 aldehydes or polyhydroxy compds. in presence of  
 polymer-stabilized metal nanoparticle catalysts)

RN 133634-68-1 HCAPLUS

CN  $\alpha$ -D-Glucopyranosiduronic acid,  $\beta$ -D-fructofuranosyl (9CI) (CA

(INDEX NAME)

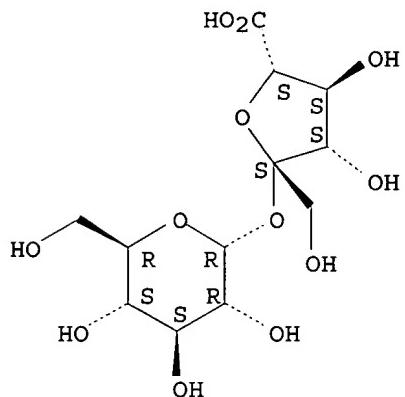
Absolute stereochemistry.



RN 133634-69-2 HCAPLUS

CN D-lyxo-5-Hexulo-5,2-furanosidonic acid,  $\alpha$ -D-glucopyranosyl, (5S)- (9CI) (CA INDEX NAME)

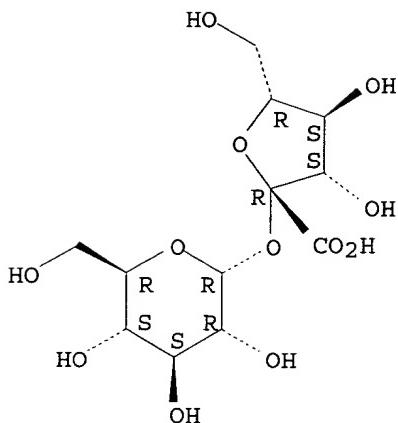
Absolute stereochemistry.



RN 150787-99-8 HCAPLUS

CN  $\beta$ -D-arabino-2-Hexulofuranosidonic acid,  $\alpha$ -D-glucopyranosyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.

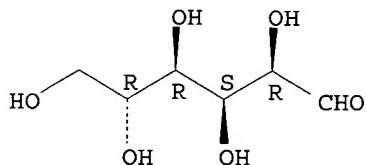


IT 7440-06-4, Platinum, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (nanoparticles; chemical conversion of carbohydrates,  
 alcs., aldehydes or polyhydroxy compds. in  
 presence of polymer-stabilized metal nanoparticle  
 catalysts)  
 RN 7440-06-4 HCAPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

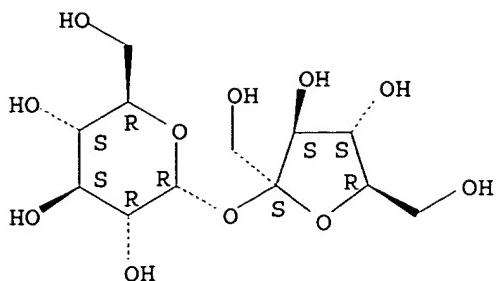
IT 50-99-7, Glucose, reactions 57-50-1, Saccharose,  
 reactions 87-79-6, Sorbose  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation; chemical conversion of carbohydrates, alcs.,  
 aldehydes or polyhydroxy compds. in presence of  
 polymer-stabilized metal nanoparticle catalysts)  
 RN 50-99-7 HCAPLUS  
 CN D-Glucose (8CI, 9CI) (CA INDEX NAME)

Absolute stereochemistry.



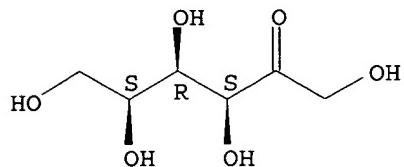
RN 57-50-1 HCAPLUS  
 CN α-D-Glucopyranoside, β-D-fructofuranosyl (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 87-79-6 HCAPLUS  
 CN L-Sorbose (9CI) (CA INDEX NAME)

Absolute stereochemistry.

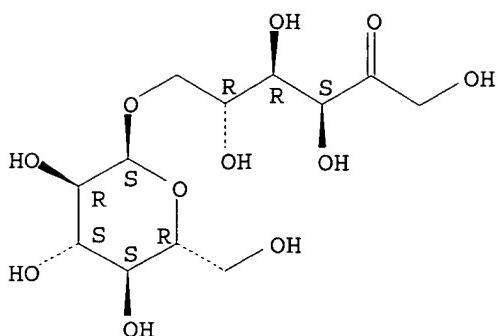


IT 124-22-1, Dodecylamine  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reductive amination of isomaltulose; chemical conversion of carbohydrates, alcs., aldehydes or polyhydroxy compds. in presence of polymer-stabilized metal nanoparticle catalysts)  
 RN 124-22-1 HCAPLUS  
 CN 1-Dodecanamine (9CI) (CA INDEX NAME)

H<sub>2</sub>N-(CH<sub>2</sub>)<sub>11</sub>-Me

IT 13718-94-0, Isomaltulose  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reductive amination with dodecylamine; chemical conversion of carbohydrates, alcs., aldehydes or polyhydroxy compds. in presence of polymer-stabilized metal nanoparticle catalysts)  
 RN 13718-94-0 HCAPLUS  
 CN D-Fructose, 6-O- $\alpha$ -D-glucopyranosyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



- AB Industrial conversion of the title compds. in aqueous phase is carried out in the presence of metal catalysts consisting of polymer-stabilized nanoparticles. A catalyst of this type is not deactivated by the conversion reaction as long as the stabilizing interaction between the polymer and the nanoparticles is maintained. For example, activity of an Al<sub>2</sub>O<sub>3</sub>-supported, poly(vinylpyrrolidone)-stabilized Pt colloid catalyst (preparation given) in oxidation of sorbose with O remained unchanged after 10 repeated expts. whereas the activity of a customary Al<sub>2</sub>O<sub>3</sub>-supported Pt catalyst decreased to .apprx.35% after 10 runs.
- IC ICM C07H015-00
- CC 44-4 (Industrial Carbohydrates)  
Section cross-reference(s): 67
- ST carbohydrate oxidn platinum nanoparticle catalyst;  
polyvinylpyrrolidone stabilized platinum colloid catalyst sorbose oxidn
- IT Nanoparticles  
Oxidation
- Oxidation catalysts**  
(chemical conversion of carbohydrates, alcs.,  
aldehydes or polyhydroxy compds. in presence of  
polymer-stabilized metal nanoparticle catalysts)
- IT Alcohols, processes  
Aldehydes, processes  
Carbohydrates, processes
- RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(chemical conversion of carbohydrates, alcs.,  
aldehydes or polyhydroxy compds. in presence of  
polymer-stabilized metal nanoparticle catalysts)
- IT Alcohols, processes
- RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(polyhydric; chemical conversion of carbohydrates,  
alcs., aldehydes or polyhydroxy compds. in  
presence of polymer-stabilized metal nanoparticle catalysts)
- IT 9003-39-8, Poly(vinylpyrrolidone)
- RL: CAT (Catalyst use); USES (Uses)  
(chemical conversion of carbohydrates, alcs.,  
aldehydes or polyhydroxy compds. in presence of metal  
nanoparticle catalysts stabilized with)
- IT 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses  
7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses  
7440-50-8, Copper, uses
- RL: CAT (Catalyst use); USES (Uses)  
(chemical conversion of carbohydrates, alcs.,  
aldehydes or polyhydroxy compds. in presence of  
polymer-stabilized metal nanoparticle catalysts)
- IT 7782-44-7, Oxygen, uses

- RL: NUU (Other use, unclassified); USES (Uses)  
 (chemical conversion of **carbohydrates**, **alcs.**,  
**aldehydes** or **polyhydroxy** compds. in presence of  
 polymer-stabilized metal nanoparticle catalysts)
- IT 57-48-7, Fructose, processes 58-86-6, Xylose, processes  
 63-42-3, Lactose 69-79-4, Maltose 499-40-1,  
 Isomaltose 51411-23-5, Trehalulose  
 RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (chemical conversion of **carbohydrates**, **alcs.**,  
**aldehydes** or **polyhydroxy** compds. in presence of  
 polymer-stabilized metal nanoparticle catalysts)
- IT 133634-68-1P 133634-69-2P 150787-99-8P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (chemical conversion of **carbohydrates**, **alcs.**,  
**aldehydes** or **polyhydroxy** compds. in presence of  
 polymer-stabilized metal nanoparticle catalysts)
- IT 7440-06-4, Platinum, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (nanoparticles; chemical conversion of **carbohydrates**,  
**alcs.**, **aldehydes** or **polyhydroxy** compds. in  
 presence of polymer-stabilized metal nanoparticle  
 catalysts)
- IT 50-99-7, Glucose, reactions 57-50-1, Saccharose,  
 reactions 87-79-6, Sorbose  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation; chemical conversion of **carbohydrates**, **alcs.**,  
**aldehydes** or **polyhydroxy** compds. in presence of  
 polymer-stabilized metal nanoparticle catalysts)
- IT 124-22-1, Dodecylamine  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (**reductive amination** of isomaltulose; chemical  
 conversion of **carbohydrates**, **alcs.**,  
**aldehydes** or **polyhydroxy** compds. in presence of  
 polymer-stabilized metal nanoparticle catalysts)
- IT 13718-94-0, Isomaltulose  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (**reductive amination** with dodecylamine; chemical  
 conversion of **carbohydrates**, **alcs.**,  
**aldehydes** or **polyhydroxy** compds. in presence of  
 polymer-stabilized metal nanoparticle catalysts)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d 183 ibib hitstr abs hitind 2-20

L83 ANSWER 2 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 2000:637821 HCAPLUS  
 DOCUMENT NUMBER: 133:355775  
 TITLE: Preparation and Catalytic Properties of Amphiphilic  
 Copolymer-Stabilized Platinum Metals Colloids  
 AUTHOR(S): Tu, Weixia; Liu, Hanfan; Liew, Kong Yong  
 CORPORATE SOURCE: Polymer Chemistry Laboratory, Chinese Academy of  
 Sciences and China Petro-Chemical Corporation, Center  
 for Molecular Science, Institute of Chemistry, Chinese  
 Academy of Sciences, Beijing, 100080, Peop. Rep. China  
 SOURCE: Journal of Colloid and Interface Science (2000  
 ), 229(2), 453-461  
 CODEN: JCISA5; ISSN: 0021-9797  
 PUBLISHER: Academic Press

DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-06-4, Platinum, uses  
 RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
 (preparation and catalytic properties of amphiphilic copolymer-stabilized platinum metals colloids)  
 RN 7440-06-4 HCPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

## Pt

IT 7440-02-0, Nickel, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (selective hydrogenation of chloronitrobenzene to chloroaniline with introduction of Ni(II) to PVPAA-stabilized Pt catalytic system)  
 RN 7440-02-0 HCPLUS  
 CN Nickel (8CI, 9CI) (CA INDEX NAME)

## Ni

AB Several metal colloids stabilized by an amphiphilic copolymer, poly(1-vinylpyrrolidone-co-acrylic acid) (abbreviated as PVPAA), were prepared by refluxing alc.-H<sub>2</sub>O mixed solns. of the corresponding metal precursors. They had small particle sizes and narrow size distributions. Their catalytic activity was tested by hydrogenation of cyclooctene, 1-dodecene, and ortho-chloronitrobenzene (o-CNB). With the introduction of Ni(II) ions to a PVPAA-stabilized Pt catalytic system, selective hydrogenation of o-CNB to ortho-chloroaniline (o-CAN) with 97.1% selectivity and 100% conversion was obtained. (c) 2000 Academic Press.

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 66

IT Colloids

Hydrogenation catalysts

Particle size

Particle size distribution

(preparation and catalytic properties of amphiphilic copolymer-stabilized platinum metals colloids)

IT 7440-06-4, Platinum, uses 28062-44-4

RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
 (preparation and catalytic properties of amphiphilic copolymer-stabilized platinum metals colloids)

IT 7440-02-0, Nickel, uses

RL: CAT (Catalyst use); USES (Uses)

(selective hydrogenation of chloronitrobenzene to chloroaniline with introduction of Ni(II) to PVPAA-stabilized Pt catalytic system)

REFERENCE COUNT: 61 THERE ARE 61 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L83 ANSWER 3 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:566746 HCPLUS

DOCUMENT NUMBER: 134:117443

TITLE: Hydrogenation of olefins in aqueous phase, catalyzed by ligand/protected and polymer-protected rhodium colloids

AUTHOR(S): Borsla, A.; Wilhelm, A. M.; Canselier, J. P.; Delmas, H.

CORPORATE SOURCE: Laboratoire de Genie Chimique-UMR CNRS 5503 (INPT/UPS)  
 Ecole Nationale Supérieure d'Ingenieurs de Genie  
 Chimique, Toulouse, 31078/4, Fr.

SOURCE: Studies in Surface Science and Catalysis (2000  
 ), 130C(International Congress on Catalysis, 2000, Pt.  
 C), 2093-2098  
 CODEN: SSCTDM; ISSN: 0167-2991

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

IT 7440-16-6, Rhodium, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (sulfonated triphenylphosphine ligand and polymer  
 stabilized rhodium colloids as hydrogenation catalysts for  
 olefins)

RN 7440-16-6 HCPLUS

CN Rhodium (8CI, 9CI) (CA INDEX NAME)

Rh

AB M-tri-sulfonated triphenylphosphine oxide as its sodium salt (OTPPTS) and highly water soluble polymers such as poly(vinyl alc.) (PVA) and poly(vinylpyrrolidone) (PVP) were used to stabilize colloidal suspensions of active rhodium particles. The stabilized colloids were used as catalysts in hydrogenation of oct-1-ene in a two-liquid phase system. The effect of various parameters on the stability and activity of the metal nanoparticles under more or less severe conditions was studied. For OTPPTS-protected rhodium colloid systems, the colloid stability improved by increasing the P/Rh molar ratio. Lowering the pressure also improved stability, but led to lower catalytic activity while temperature had no effect on stability but rather on the formation of the active species. The PVP(K15)-Rh colloids can be re-used more than one time at 50° and 0.3 MPa without loss of activity, but not the PVP(K30)-Rh and PVA-Rh colloids. Recycling of the catalytic phase provided unchanged turnover frequencies. Suppression of co-solvent did not result in noticeable changes in activity, indicating that the reaction takes place at the interface. The MET micrographs of the catalytic phase of the OTPPTS-Rh system after use in hydrogenation shows 4 nm particles containing rhodium oxide and metallic rhodium. IR spectroscopy anal. of the PVP-Rh colloids shows geminal and terminal Rh-CO species with a preponderance of the geminal ones.

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 Section cross-reference(s): 67

ST rhodium polymer colloid hydrogenation catalyst stability recycling; olefin hydrogenation rhodium polyvinyl alc colloid catalyst;  
 polyvinylpyrrolidone colloid sulfonated triphenylphosphine oxide rhodium catalyst

IT Hydrogenation catalysts  
 (sulfonated triphenylphosphine ligand and polymer stabilized rhodium colloids as hydrogenation catalysts for olefins)

IT 7440-16-6, Rhodium, uses 9002-89-5, Poly(vinyl alcohol  
 ) 9003-39-8, Poly(vinylpyrrolidone) 109427-00-1  
 RL: CAT (Catalyst use); USES (Uses)  
 (sulfonated triphenylphosphine ligand and polymer  
 stabilized rhodium colloids as hydrogenation catalysts for  
 olefins)

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L83 ANSWER 4 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 2000:492945 HCPLUS  
 DOCUMENT NUMBER: 133:95064  
 TITLE: Preparation and catalysis of polymer-protected coinage metal nanoclusters  
 AUTHOR(S): Shiraishi, Yukihide; Hirakawa, Kazutaka; Toshima, Naoki  
 CORPORATE SOURCE: Department of Materials Science and Engineering, Science University of Tokyo in Yamaguchi, Onoda-shi, Yamaguchi, 756-0884, Japan  
 SOURCE: Kobunshi Ronbunshu (2000), 57(6), 346-355  
 CODEN: KBRBA3; ISSN: 0386-2186  
 PUBLISHER: Kobunshi Gakkai  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Japanese  
 IT 7440-16-6, Rhodium, uses  
 RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
 (preparation and catalysis of polymer-protected coinage metal nanoclusters)  
 RN 7440-16-6 HCPLUS  
 CN Rhodium (8CI, 9CI) (CA INDEX NAME)

Rh

AB Preparation, characterization and catalysis of polymer-protected coinage metal nanoclusters were investigated, especially from the viewpoint of bimetallic reduction. Poly (N-vinyl-2-pyrrolidone) (PVP)-protected Au/Rh bimetallic nanoclusters with an average diameter of 2.6 nm were prepared by *alc.* reduction of HAuCl<sub>4</sub> and RhCl<sub>3</sub> in the presence of PVP. The Au/Rh bimetallic nanoclusters having an Au-core/Rh-shell structure work as more active catalysts for visible-light-induced hydrogen generation from water than the corresponding Au and Rh monometallic nanoclusters. Ag nanoclusters protected by poly(sodium acrylate) (PSA) were prepared by UV irradiation of an *alc.*-water solution of silver perchlorate in the presence of PSA and were applied to the catalyst for oxidation of ethylene. The activity of Ag nanoclusters thus prepared remarkably increases with increasing the reaction temperature. Addition of cesium and rhenium ions increases the catalytic activity of PSA-Ag nanoclusters as well. Thus, PSA plays an important role in this system. PVP-protected Cu/Pd alloy nanoclusters were prepared by reduction in glycol at 198°C, revealing high activity as a catalyst for hydration of acrylonitrile to acrylamide as well as for partial hydrogenation of 1,3-cyclooctadiene to cyclooctene.  
 CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 38  
 IT **Epoxidation catalysts**  
 Hydration catalysts  
 Hydrogenation catalysts  
 Nanoparticles  
 Photolysis catalysts  
 (preparation and catalysis of polymer-protected coinage metal nanoclusters)  
 IT 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses 7440-46-2, Cesium, uses 7440-57-5, Gold, uses 9003-39-8, Poly (N-vinyl-2-pyrrolidone) 25549-84-2, Poly(sodium acrylate) 39286-82-3  
 RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
 (preparation and catalysis of polymer-protected coinage metal nanoclusters)

L83 ANSWER 5 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 2000:413470 HCPLUS  
 DOCUMENT NUMBER: 133:237559  
 TITLE: Asymmetric hydrogenation of  $\alpha$ -diketones over polymer-stabilized and supported platinum clusters  
 AUTHOR(S): Zuo, X.; Liu, H.; Tian, J.  
 CORPORATE SOURCE: Institute of Chemistry, Center for Molecular Science, PCLCC, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China  
 SOURCE: Journal of Molecular Catalysis A: Chemical (2000), 157(1-2), 217-224  
 CODEN: JMCCF2; ISSN: 1381-1169  
 PUBLISHER: Elsevier Science B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 133:237559  
 IT 7440-06-4D, Platinum, polymer-stabilized and supported, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (asym. hydrogenation of  $\alpha$ -diketones over polymer-stabilized and supported platinum clusters)  
 RN 7440-06-4 HCPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

AB The asym. hydrogenation of  $\alpha$ -diketones was investigated over finely dispersed polymer-stabilized and supported platinum clusters. It was shown that the rate-accelerating effect of cinchonidine in this reaction was much less pronounced than the case of Pt/cinchona/ $\alpha$ -keto ester system. The activity and enantiomeric excess (e.e.) for 3-hydroxy-2-butanone reached maximum when the molar ratio of the modifier to reactant was about 1:650. There was no close correlation between the catalytic performance of the platinum clusters and the polarity of the solvents, whereas good enantioselectivity ( $\sim 40\%$ ) as well as activity could be obtained in a mixture of dichloromethane and ethanol.  
 CC 23-7 (Aliphatic Compounds)  
 IT Hydrogenation  
 Hydrogenation catalysts  
 (stereoselective; asym. hydrogenation of  $\alpha$ -diketones over polymer-stabilized and supported platinum clusters)  
 IT 485-71-2, Cinchonidine 7440-06-4D, Platinum, polymer-stabilized and supported, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (asym. hydrogenation of  $\alpha$ -diketones over polymer-stabilized and supported platinum clusters)  
 REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L83 ANSWER 6 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1999:745198 HCPLUS  
 DOCUMENT NUMBER: 132:24789  
 TITLE: Polymer-protected bimetallic nanocluster catalysts having core/shell structure for accelerated electron transfer in visible-light-induced hydrogen generation  
 AUTHOR(S): Toshima, Naoki; Hirakawa, Kazutaka  
 CORPORATE SOURCE: Department of Materials Science and Engineering,

Science University of Tokyo in Yamaguchi, Onoda,  
756-0884, Japan

SOURCE: Polymer Journal (Tokyo) (1999), 31(11-2),  
1127-1132

CODEN: POLJB8; ISSN: 0032-3896

PUBLISHER: Society of Polymer Science, Japan

DOCUMENT TYPE: Journal

LANGUAGE: English

IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses  
7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses

RL: CAT (Catalyst use); USES (Uses)  
(polymer-protected bimetallic nanocluster catalysts  
having core/shell structure for accelerated electron transfer in  
visible-light-induced hydrogen generation)

RN 7440-05-3 HCAPLUS

CN Palladium (8CI, 9CI) (CA INDEX NAME)

Pd

RN 7440-06-4 HCAPLUS

CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

RN 7440-16-6 HCAPLUS

CN Rhodium (8CI, 9CI) (CA INDEX NAME)

Rh

RN 7440-18-8 HCAPLUS

CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

AB A visible-light-induced electron transfer system was constructed by using tris(bipyridine)ruthenium(III), Me viologen, EDTA and colloidal metal nanocluster as photosensitizer, electron relay, sacrificial electron donor and reductive catalyst, resp. Polymer-protected Au, Pt, Pd, Rh and Ru monometallic, and Au/Pt, Au/Pd, Au/Rh and Pt/Ru bimetallic nanocluster catalysts were prepared as colloidal dispersions by alc.-reduction, and applied to the catalysts for the above reaction. The rate of electron transfer from Me viologen cation radical to the metal nanocluster catalyst is proportional to the hydrogen generation rate at a steady state. All the electrons accepted by metal nanocluster catalysts are used for the hydrogen generation. Both electron transfer and hydrogen generation rates increase when the colloidal dispersions of bimetallic nanoclusters are used in place of the corresponding monometallic nanoclusters. An Au-core/Rh-shell structure has been suggested by UV-Vis spectrum measurement for Au/Rh bimetallic nanoclusters.

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 67, 74

IT Nanoparticles

Photoinduced electron transfer

Photolysis catalysts

Reduction catalysts

(polymer-protected bimetallic nanocluster catalysts having core/shell structure for accelerated electron transfer in visible-light-induced hydrogen generation)

IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses  
7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses  
7440-57-5, Gold, uses

RL: CAT (Catalyst use); USES (Uses)

(polymer-protected bimetallic nanocluster catalysts having core/shell structure for accelerated electron transfer in visible-light-induced hydrogen generation)

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L83 ANSWER 7 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1998:725461 HCAPLUS

DOCUMENT NUMBER: 130:196398

TITLE: Selective hydrogenation of  $\alpha,\beta$ -unsaturated aldehyde to  $\alpha,\beta$ -unsaturated alcohol over polymer-stabilized platinum

colloid and the promotion effect of metal cations

AUTHOR(S): Yu, Weiyong; Liu, Hanfan; Liu, Manhong; Tao, Qing  
CORPORATE SOURCE: Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China

SOURCE: Journal of Molecular Catalysis A: Chemical (1999), 138(2-3), 273-286

CODEN: JMCCF2; ISSN: 1381-1169

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

IT 7440-06-4D, Platinum, polymer-stabilized platinum colloid, uses

RL: CAT (Catalyst use); USES (Uses)

(selective hydrogenation of  $\alpha,\beta$ -unsatd. aldehyde to  $\alpha,\beta$ -unsatd. alc. over polymer-stabilized platinum colloid and the promotion effect of metal cations)

RN 7440-06-4 HCAPLUS

CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

AB The modification of some metal cations to polymer-stabilized platinum colloid leads to remarkable increases in both the activity and the selectivity in liquid-phase selective hydrogenation of cinnamaldehyde to cinnamyl alc. and of crotonaldehyde to crotyl alc. The promotion effect was due to the interaction of metal cations and the C:O groups in reactants. The adsorbed metal cations activated the C:O double bonds to accelerate the reaction rate and to increase the selectivity to  $\alpha,\beta$ -unsatd. alcs. The steric hindrance also played an important role in the reaction.

CC 22-7 (Physical Organic Chemistry)

Section cross-reference(s): 67

ST unsatd aldehyde selective hydrogenation polymer stabilized platinum colloid; metal ion promotor polymer stabilized platinum colloid

IT catalyst  
 IT Particle size  
 Steric hindrance  
 (selective hydrogenation of  $\alpha,\beta$ -unsatd. aldehyde  
 to  $\alpha,\beta$ -unsatd. alc. over polymer-stabilized  
 platinum colloid and the promotion effect of metal cations)  
 IT Hydrogenation  
**Hydrogenation catalysts**  
 (selective; selective hydrogenation of  $\alpha,\beta$ -unsatd.  
 aldehyde to  $\alpha,\beta$ -unsatd. alc. over  
 polymer-stabilized platinum colloid and the promotion effect of metal  
 cations)  
 IT 7440-06-4D, Platinum, polymer-stabilized  
 platinum colloid, uses 9003-39-8, PVP 15438-31-0, Iron ion(2+), uses  
 20074-52-6, Iron ion(3+), uses 22541-53-3, Cobalt ion(2+), uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (selective hydrogenation of  $\alpha,\beta$ -unsatd. aldehyde  
 to  $\alpha,\beta$ -unsatd. alc. over polymer-  
 stabilized platinum colloid and the promotion effect of metal  
 cations)  
 IT 104-55-2, Cinnamaldehyde 4170-30-3, Crotonaldehyde  
 RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC  
 (Process); RACT (Reactant or reagent)  
 (selective hydrogenation of  $\alpha,\beta$ -unsatd. aldehyde  
 to  $\alpha,\beta$ -unsatd. alc. over polymer-stabilized  
 platinum colloid and the promotion effect of metal cations)  
 IT 104-54-1P, Cinnamyl alcohol 6117-91-5P, Crotyl alcohol  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (selective hydrogenation of  $\alpha,\beta$ -unsatd. aldehyde  
 to  $\alpha,\beta$ -unsatd. alc. over polymer-stabilized  
 platinum colloid and the promotion effect of metal cations)  
 REFERENCE COUNT: 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L83 ANSWER 8 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1998:721850 HCPLUS  
 DOCUMENT NUMBER: 129:307026  
 TITLE: Colloidal platinum-polyacid nanocatalyst systems  
 AUTHOR(S): Mayer, Andrea B. R.; Mark, James E.; Hausner, Sven H.  
 CORPORATE SOURCE: Department Chemistry, University Cincinnati,  
 Cincinnati, OH, 45221, USA  
 SOURCE: Angewandte Makromolekulare Chemie (1998),  
 259, 45-53  
 CODEN: ANMCBO; ISSN: 0003-3146  
 PUBLISHER: Wiley-VCH Verlag GmbH  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-06-4P, Platinum, uses  
 RL: CAT (Catalyst use); PNU (Preparation, unclassified); PRP  
 (Properties); PREP (Preparation); USES (Uses)  
 (effect of water-soluble polymers on stabilization,  
 morphol., and catalytic activity of colloidal platinum)  
 RN 7440-06-4 HCPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

AB Various water-soluble polymers, with special emphasis on polyacids, were

employed for the stabilization of colloidal Pt nanoparticles which were prepared by the in-situ reduction of H<sub>2</sub>PtCl<sub>6</sub>. The particle sizes, size distributions, and morphologies of the Pt nanoparticles were determined by transmission electron microscopy. In addition, the catalytic activities of the Pt-polymer systems were qual. evaluated by the hydrogenation of cyclohexene as a model reaction. The type of polymer (e.g., the use of a polyacid vs. a nonionic, water-soluble polymer) cannot only influence the nanoparticle sizes and morphologies and the colloid stabilities, but the catalytic activities as well. In most cases, increased catalytic activities were observed for the Pt catalysts if various polyacids were used as protective matrixes. Several influences, such as the particle size and morphol., and the interactions between the polymer and the catalyst nanoparticles have to be considered. Therefore, the selection of the protective polymer is highly important for tailoring the catalytic properties of such metal-polymer catalyst systems. Addnl. influences may stem from the presence of ions (e.g., from the metal precursor or the counterions of the polymer) or special functions introduced by certain components of the polymer (e.g., units capable of hydrogen transfer).

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
Section cross-reference(s): 36

IT **Hydrogenation catalysts**

(effect of water-soluble polymers on catalytic activity of colloidal platinum)

IT 7440-06-4P, Platinum, uses

RL: CAT (Catalyst use); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)

(effect of water-soluble polymers on stabilization, morphol., and catalytic activity of colloidal platinum)

IT 9003-39-8, Poly(vinylpyrrolidone) 25086-89-9, VinylPyrrolidinone-vinylacetate copolymer 25087-26-7, Polymethacrylic acid 25119-64-6, Poly(itaconic acid) 25119-83-9, Acrylic acid-butyl acrylate copolymer 25703-79-1, Poly(2-hydroxypropyl methacrylate) 27119-07-9, Poly(2-acrylamido-2-methyl-1-propanesulfonic acid) 27754-99-0, Poly(vinyl phosphonic acid) 28062-44-4, 2-Pyrrolidinone, 1-Ethenyl-, polymer with 2-Propenoic acid 28265-35-2, Butadiene-maleic acid copolymer 50851-57-5, Polystyrene sulfonic acid  
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(effect of water-soluble polymers on stabilization, morphol., and catalytic activity of colloidal platinum)

L83 ANSWER 9 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1998:375151 HCAPLUS

DOCUMENT NUMBER: 129:135753

TITLE: Catalytic hydrogenation by polymer stabilized rhodium

AUTHOR(S): Busser, G. W.; Van Ommen, J. G.; Lercher, J. A.

CORPORATE SOURCE: Department of Chemical Technology, University of Twente, Enschede, 7500 AE, Neth.

SOURCE: Studies in Surface Science and Catalysis (1997), 108(Heterogeneous Catalysis and Fine Chemicals IV), 321-328

CODEN: SSCTDM; ISSN: 0167-2991

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

IT 7440-16-6, Rhodium, properties

RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)

(catalytic hydrogenation by polymer stabilized rhodium)

RN 7440-16-6 HCPLUS  
 CN Rhodium (8CI, 9CI) (CA INDEX NAME)

Rh

AB The preparation, physicochem. characterization and catalytic testing of polymer stabilized rhodium particles are described. Particles between 1 and 3.5 nm stabilized by polyvinyl-2-pyrrolidone and poly-2-ethyloxazoline were characterized by Transmission Electron Microscopy (TEM), X-ray absorption spectroscopy (XAFS) and liquid phase hydrogen/oxygen titration. Liquid phase hydrogenation of 4-tert-butylphenol was used as a test reaction. It was found that in contrast to a conventional carbon supported material, a polymer supported Rh did not lead to hydrogenolysis and isomerization. Larger catalyst particles and a higher concentration of polymer caused a higher selectivity to 4-tert-butylcyclohexanone. This has been attributed to the presence of well-reduced Rh. In contrast, the availability of electron deficient Rh is speculated to enhance the rate of hydrogenation to 4-tert-butylcyclohexanol. The preferential formation of the cis-isomer of this alc. was observed over all the catalysts.

CC 22-3 (Physical Organic Chemistry)  
 Section cross-reference(s): 36, 67

IT Clusters  
 Hydrogenation

**Hydrogenation catalysts**

Hydrogenolysis

Isomerization

Particles

Polymer-supported reagents

Regiochemistry

Stereochemistry

Transmission electron microscopy

XAFS spectroscopy

(catalytic hydrogenation by polymer stabilized rhodium)

IT 7440-16-6, Rhodium, properties 25805-17-8, Poly-2-ethyloxazoline  
 RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
 (catalytic hydrogenation by **polymer stabilized**  
 rhodium)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L83 ANSWER 10 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1996:714412 HCPLUS

DOCUMENT NUMBER: 126:37726

TITLE: Polymer-protected palladium nanoparticles and their use in catalysis

AUTHOR(S): Mayer, Andrea B. R.; Mark, James E.

CORPORATE SOURCE: Polymer Research Center, University Cincinnati,  
 Cincinnati, OH, 45221-0172, USA

SOURCE: Macromolecular Reports (1996), A33 (Suppl.  
 7&8), 451-459

CODEN: MREPEG; ISSN: 1060-278X

PUBLISHER: Dekker

DOCUMENT TYPE: Journal

LANGUAGE: English

IT 7440-05-3, Palladium, uses

RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
 (polymer-protected palladium nanoparticles and

their use in catalysis)  
 RN 7440-05-3 HCAPLUS  
 CN Palladium (8CI, 9CI) (CA INDEX NAME)

## Pd

AB Stable palladium colloids were prepared by the in-situ reduction of palladium chloride ( $PdCl_2$ ) in the presence of protective water-soluble polymers and cationic polyelectrolytes. The particle sizes, morphologies, and particle-size distributions were determined by transmission electron microscopy and found to be in the nanometer size range. The catalytic activity of these colloidal metal-polymer systems was tested by the hydrogenation of cyclohexene as a model reaction. Most of the polymer-protected palladium nanoparticles were found to be catalytically active, and final conversions up to 100% were obtained in many cases.  
 CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 38, 66  
 IT Hydrogenation catalysts  
 (for cyclohexene; polymer-protected palladium nanoparticles and their use in catalysis)  
 IT 7440-05-3, Palladium, uses 9003-39-8 9011-16-9 25086-89-9  
 25609-94-3 25703-79-1, Poly(2-hydroxypropyl methacrylate)  
 25805-17-8, Poly(2-ethyl-2-oxazoline) 26062-79-3 28062-44-4  
 50851-57-5, Poly(styrene sulfonic acid) 58564-97-9 68039-13-4  
 RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
 (polymer-protected palladium nanoparticles and their use in catalysis)

L83 ANSWER 11 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1996:645827 HCAPLUS  
 DOCUMENT NUMBER: 126:37738  
 TITLE: Polymer-protected, colloidal platinum nanocatalysts  
 AUTHOR(S): Mayer, A. B. R.; Mark, J. E.  
 CORPORATE SOURCE: Polymer Research Center, University Cincinnati,  
 Cincinnati, OH, 45221, USA  
 SOURCE: Polymer Bulletin (Berlin) (1996), 37(5),  
 683-690  
 CODEN: POBUDR; ISSN: 0170-0839  
 PUBLISHER: Springer  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-06-4, Platinum, uses  
 RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
 (preparation and characterization of polymer-protected  
 colloidal Pt nanocatalysts)  
 RN 7440-06-4 HCAPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

## Pt

AB Several stable colloidal Pt nanocatalysts were prepared by in-situ reduction of  $H_2PtCl_6$ , and were protected by various water-soluble homopolymers and random copolymers as well as cationic polyelectrolytes. The particle sizes, morphologies, and size distributions were determined by TEM, and the catalytic activity of the Pt nanoparticles was tested by the hydrogenation of cyclohexene. The type of protective polymer and its properties strongly

influence the catalytic activity by creating a certain environment surrounding the catalytically-active nanometal. Thus, careful selection of the protective polymer plays an important role in the development of tailored metal-polymer catalyst systems.

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
Section cross-reference(s): 38

IT **Hydrogenation catalysts**

(preparation and characterization of polymer-protected colloidal Pt nanocatalysts)

IT 9003-39-8 9011-16-9, Methylvinylether-maleic anhydride copolymer  
25086-89-9 25087-26-7, Poly(methacrylic acid) 25703-79-1, Poly(2-hydroxypropylmethacrylate) 25805-17-8, Poly(2-ethyl-2-oxazoline) 26062-79-3, Poly(diallyldimethyl ammonium chloride) 27119-07-9, Poly(2-acrylamido-2-methyl-1-propane sulfonic acid) 27754-99-0, Poly(vinyl phosphonic acid) 28062-44-4 50851-57-5, Poly(styrene sulfonic acid) 68039-13-4, Poly(methacrylamido-propyltrimethyl ammonium chloride) 184713-15-3

RL: CAT (Catalyst use); USES (Uses)

(preparation and characterization of polymer-protected colloidal Pt nanocatalysts)

IT 7440-06-4, Platinum, uses

RL: CAT (Catalyst use); PRP (Properties); USES (Uses)

(preparation and characterization of **polymer-protected** colloidal Pt nanocatalysts)

L83 ANSWER 12 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1996:606505 HCAPLUS

DOCUMENT NUMBER: 125:300524

TITLE: Preparation and characterization of polymer-protected Pt/Co bimetallic colloids and their catalytic properties in the selective hydrogenation of **cinnamaldehyde**

AUTHOR(S): Yu, Weiyong; Wang, Yuan; Liu, Hanfan; Zheng, Wen

CORPORATE SOURCE: Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100 080, Peop. Rep. China

SOURCE: Journal of Molecular Catalysis A: Chemical (1996), 112(1), 105-113

CODEN: JMCCF2; ISSN: 1381-1169

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

IT 7440-06-4D, Platinum, **polymer-protected**

RL: CAT (Catalyst use); PRP (Properties); USES (Uses)

(preparation and characterization of **polymer-protected** Pt/Co bimetallic colloids and their catalytic properties in selective hydrogenation of **cinnamaldehyde**)

RN 7440-06-4 HCAPLUS

CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

AB Polymer-protected Pt/Co bimetallic colloids with Pt/Co molar ratios of 3:1 and 1:1 have been prepared by the polyol process and characterized by TEM and XRD. Over the above Pt/Co bimetallic colloid catalyst (Pt/Co = 3:1), **cinnamaldehyde** can be selectively hydrogenated to cinnamyl alc. with 99.8% selectivity at 96.2% conversion. The activity and selectivity can be affected by H<sub>2</sub>O and NaOH added to the reaction system; the former leads to a highly polar solution and the latter retards the

olefinic hydrogenation. The Pt/Co bimetallic colloid is stable enough to withstand the hydrogenation reaction at 333 K and 4.0 MPa.

CC 25-7 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

ST cinnamaldehyde hydrogenation catalyst platinum cobalt

IT Hydrogenation catalysts

Polymer-supported reagents  
(preparation and characterization of polymer-protected Pt/Co bimetallic colloids and their catalytic properties in selective hydrogenation of cinnamaldehyde)

IT 1310-73-2, Sodium hydroxide, uses 7732-18-5, Water, uses 9003-39-8, Poly(N-vinyl-2-pyrrolidone)  
RL: CAT (Catalyst use); USES (Uses)  
(preparation and characterization of polymer-protected Pt/Co bimetallic colloids and their catalytic properties in selective hydrogenation of cinnamaldehyde)

IT 7440-06-4D, Platinum, polymer-protected  
7440-48-4D, Cobalt, polymer-protected  
RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
(preparation and characterization of polymer-protected Pt/Co bimetallic colloids and their catalytic properties in selective hydrogenation of cinnamaldehyde)

IT 104-55-2, Cinnamaldehyde  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation and characterization of polymer-protected Pt/Co bimetallic colloids and their catalytic properties in selective hydrogenation of cinnamaldehyde)

IT 104-54-1P, Cinnamyl alcohol  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and characterization of polymer-protected Pt/Co bimetallic colloids and their catalytic properties in selective hydrogenation of cinnamaldehyde)

L83 ANSWER 13 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1996:599766 HCPLUS  
DOCUMENT NUMBER: 125:328130  
TITLE: Immobilization of polymer-protected metal colloid catalysts by the formation of polymer hydrogen bond complexes  
AUTHOR(S): Wang, Yuan; Liu, Hanfan; Huang, Yanxia  
CORPORATE SOURCE: Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China  
SOURCE: Polymers for Advanced Technologies (1996), 7(8), 634-638  
CODEN: PADTE5; ISSN: 1042-7147  
PUBLISHER: Wiley  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
IT 7440-05-3P, Palladium, preparation 7440-06-4P, Platinum, preparation 7440-16-6P, Rhodium, preparation  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(catalyst; immobilization of polymer-protected metal colloid hydrogenation catalysts by hydrogen bonding to polymers)

RN 7440-05-3 HCPLUS  
CN Palladium (8CI, 9CI) (CA INDEX NAME)

Pd

RN 7440-06-4 HCAPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

## Pt

RN 7440-16-6 HCAPLUS  
 CN Rhodium (8CI, 9CI) (CA INDEX NAME)

## Rh

AB Nanoscopic noble metal (Pt, Pd, Rh) colloidal catalysts, protected by poly(N-vinyl-2-pyrrolidone) (PVP) or polyvinyl alc. (PVA), were immobilized to give heterogeneous catalysts by forming polymer hydrogen bond complexes with polyacrylic acid (PAA). A PVP-PAA-Pd catalyst was found to be very active and selective for the partial hydrogenation of cyclopentadiene to cyclopentene.

CC 24-4 (Alicyclic Compounds)  
 Section cross-reference(s): 35, 37, 67

IT Colloids  
 Hydrogen bond  
 Hydrogenation

**Hydrogenation catalysts**

(immobilization of polymer-protected metal colloid hydrogenation catalysts by hydrogen bonding to polymers)

IT 7440-05-3P, Palladium, preparation 7440-06-4P, Platinum,  
 preparation 7440-16-6P, Rhodium, preparation  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP  
 (Preparation); USES (Uses)  
 (catalyst; immobilization of polymer-protected  
 metal colloid hydrogenation catalysts by hydrogen bonding to polymers)

L83 ANSWER 14 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1996:486686 HCAPLUS

DOCUMENT NUMBER: 125:221328

TITLE: Modification of metal cations to metal clusters in liquid medium

AUTHOR(S): Yu, Wei-Yong; Liu, Han-Fan; Tao, Qing

CORPORATE SOURCE: Institute Chemistry, Chinese Academy Sciences,  
 Beijing, 100080, Peop. Rep. China

SOURCE: Chemical Communications (Cambridge) (1996),  
 (15), 1773-1774

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

IT 7440-06-4D, Platinum, polymer-protected  
 colloidal clusters

RL: CAT (Catalyst use); USES (Uses)  
 (hydrogenation of cinnamaldehyde with polymer-protected colloidal platinum cluster catalyst and metal cations)

RN 7440-06-4 HCAPLUS

CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

AB The modification of some metal cations to polymer-protected colloidal platinum clusters leads to remarkable increases in both selectivity and activity in homogeneous liquid-phase selective hydrogenation of **cinnamaldehyde** to cinnamyl alc.

CC 25-27 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
Section cross-reference(s): 67

ST **cinnamaldehyde** hydrogenation catalyst platinum polymer protected

IT Cations

**Hydrogenation catalysts**  
(hydrogenation of **cinnamaldehyde** with polymer-protected colloidal platinum cluster catalyst and metal cations)

IT 7440-06-4D, Platinum, **polymer-protected**  
colloidal clusters 7646-79-9, Cobalt dichloride, uses 7646-85-7, Zinc chloride, uses 7647-14-5, Sodium chloride, uses 7705-08-0, Ferric chloride, uses 7718-54-9, Nickel(II) chloride, uses 9003-39-8,  
Poly(N-vinyl-2-pyrrolidone)

RL: **CAT (Catalyst use); USES (Uses)**  
(hydrogenation of **cinnamaldehyde** with **polymer-protected** colloidal platinum cluster catalyst and metal cations)

IT 104-55-2, **Cinnamaldehyde**  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(hydrogenation of **cinnamaldehyde** with polymer-protected colloidal platinum cluster catalyst and metal cations)

IT 104-53-0P, **3-Phenylpropionaldehyde** 104-54-1P, **Cinnamyl alcohol** 122-97-4P, **3-Phenylpropanol**  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(hydrogenation of **cinnamaldehyde** with polymer-protected colloidal platinum cluster catalyst and metal cations)

L83 ANSWER 15 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1996:398835 HCAPLUS

DOCUMENT NUMBER: 125:68745

TITLE: Preparation and characterization of polymer-protected cobalt metal colloid in organic solvent

AUTHOR(S): Wang, Qian; Liu, Hanfan

CORPORATE SOURCE: Inst. Chem., Chinese Acad. Sci., Beijing, 100080,  
Peop. Rep. China

SOURCE: Cuihua Xuebao (1996), 17(3), 241-244  
CODEN: THHPD3; ISSN: 0253-9837

PUBLISHER: Kexue

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

IT 7440-05-3, Palladium, uses  
RL: **CAT (Catalyst use); USES (Uses)**  
(preparation and characterization of **polymer-protected** cobalt colloid catalyst in organic solvent)

RN 7440-05-3 HCAPLUS

CN Palladium (8CI, 9CI) (CA INDEX NAME)

Pd

AB Poly(vinylpyrrolidone-co-styrene)-protected cobalt metal colloid was prepared by anthracene magnesium reduction in THF at room temperature under the

protection of nitrogen. The copolymer was synthesized by radical copolymer of vinylpyrrolidone (NVP) with styrene (ST). From the elemental anal., the mole ratio of NVP to ST was about 0.2, and the IR spectrum showed that the copolymer was composed of functional groups of the two monomers. TEM result indicated that the average particle size of the cobalt colloid was 1.48 nm with a standard deviation of 0.51 nm, and the electron diffraction pattern of the particles declared that they were amorphous phase. The XRD investigation showed that there was no obvious diffraction line of metallic cobalt or cobalt oxide, which was consistent with the result of electron diffraction. In order to verify the metal cobalt generation, the cobalt powder was prepared under the same condition as the colloid without protective copolymer. The cobalt particles immobilized on active carbon served as catalyst for the selective hydrogenation of cinnamic aldehyde (CAL). Its TOF (defined as  $n\text{CAL}/(n\text{Co}\cdot t)$ ) was 9.2 mol/(mol·h) and the selectivity for cinnamic alc. was over 90% at 20% conversion. The palladium colloid could be prepared by the same method.

- CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 35, 66
- ST polymer protected cobalt colloid catalyst; styrene vinylpyrrolidone copolymer protected cobalt colloid; hydrogenation cinnamic aldehyde polymer protected cobalt
- IT **Hydrogenation catalysts**  
 (for cinnamic aldehyde; preparation and characterization of polymer-protected cobalt colloid catalyst in organic solvent)
- IT 104-55-2, Cinnamic aldehyde  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (hydrogenation of; preparation and characterization of polymer-protected cobalt colloid catalyst in organic solvent)
- IT 7440-05-3, Palladium, uses 7440-48-4, Cobalt, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (preparation and characterization of polymer-protected cobalt colloid catalyst in organic solvent)

L83 ANSWER 16 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1996:282716 HCPLUS  
 DOCUMENT NUMBER: 124:326097  
 TITLE: Polymer-protected bimetallic clusters with various alloying structures  
 AUTHOR(S): Toshima, Naoki  
 CORPORATE SOURCE: Dep. Appl. Chem., Sch. Eng., Univ. Tokyo, Hongo, 113, Japan  
 SOURCE: Macromolecular Symposia (1996), 105 (6th International Symposium on Macromolecule-Metal Complexes, 1995), 111-118  
 CODEN: MSYMEC; ISSN: 1022-1360  
 PUBLISHER: Huethig & Wepf  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-05-3D, Palladium, clusters 7440-06-4D, Platinum, clusters 7440-16-6D, Rhodium, clusters  
 RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
 (polymer-protected bimetallic clusters with various alloying structures)  
 RN 7440-05-3 HCPLUS  
 CN Palladium (8CI, 9CI) (CA INDEX NAME)

## Pd

RN 7440-06-4 HCAPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

## Pt

RN 7440-16-6 HCAPLUS  
 CN Rhodium (8CI, 9CI) (CA INDEX NAME)

## Rh

AB Colloidal dispersions of polymer-protected bimetallic cluster can be prepared by refluxing the alc. solns. of two kinds of metal ions in the presence of poly(N-vinyl-2-pyrrolidone). The bimetallic clusters thus prepared had higher activity as catalysts than the corresponding monometallic clusters. The structure of bimetallic clusters, analyzed by an Extended X-ray Absorption Fine Structure (EXAFS) technique as well as UV-visible (Uv-vis) absorption spectra, depends on the preparation method. Some of them have a special core-shell structure. The order of the tendency to be a core is estimated to be Au>Pt>Pd>Rh. This order could be explained by the redox potential of the corresponding metal ion and the coordination ability of the metal to polymer.  
 CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 36, 66  
 IT Hydrogenation catalysts  
 (for 1,3-cyclooctadiene; polymer-protected bimetallic clusters with various alloying structures)  
 IT 7440-05-3D, Palladium, clusters 7440-06-4D, Platinum,  
 clusters 7440-16-6D, Rhodium, clusters 7440-57-5D, Gold,  
 clusters 9003-39-8, Poly(N-vinyl-2-pyrrolidone)  
 RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
 (polymer-protected bimetallic clusters with various  
 alloying structures)

L83 ANSWER 17 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1996:1040 HCAPLUS  
 DOCUMENT NUMBER: 124:127954  
 TITLE: Polymer-protected palladium and platinum catalysts in the nanometer size range  
 AUTHOR(S): Mayer, A. B. R.; Mark, J. E.  
 CORPORATE SOURCE: Polymer Research Center, University Cincinnati, Cincinnati, OH, 45221-0172, USA  
 SOURCE: Polymeric Materials Science and Engineering (1995), 73, 220-1  
 CODEN: PMSEDG; ISSN: 0743-0515  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses  
 RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
 (polymer-protected palladium and platinum catalysts in nanometer size range)

RN 7440-05-3 HCAPLUS  
 CN Palladium (8CI, 9CI) (CA INDEX NAME)

Pd

RN 7440-06-4 HCAPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

AB We report some results for several nonionic polymers and cationic polyelectrolytes and their ability to stabilize palladium and platinum colloids. Both steric and electrostatic stabilization of the metal colloid can be combined by the use of polyelectrolytes. In addition, the catalytic activity of these systems has been tested by the hydrogenation of cyclohexene as a model reaction.

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 38, 66

IT **Hydrogenation catalysts**  
 (for cyclohexene; polymer-protected palladium and platinum catalysts in nanometer size range)

IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 9003-08-1D, methylated 9003-39-8 9011-16-9, Maleic anhydride-methylvinyl ether copolymer 24937-72-2, Poly(maleic anhydride) 25086-89-9 25249-16-5, Poly(2-hydroxyethylmethacrylate) 25322-68-3, Poly(ethylene oxide) 25703-79-1, Poly(2-hydroxypropylmethacrylate) 25805-17-8, Poly(2-ethyl-2-oxazoline) 26062-79-3, Poly(diallyldimethyl ammonium chloride) 28062-44-4 29471-77-0 50851-57-5, Poly(styrene sulfonic acid) 68039-13-4, Poly(methacrylamidopropyltrimethyl ammonium chloride)  
 RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
 (polymer-protected palladium and platinum catalysts in nanometer size range)

L83 ANSWER 18 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1986:213871 HCAPLUS  
 DOCUMENT NUMBER: 104:213871  
 TITLE: Polymer effect on fine metal particles and reactive metal complexes  
 AUTHOR(S): Hirai, Hidefumi  
 CORPORATE SOURCE: Fac. Eng., Univ. Tokyo, Tokyo, 113, Japan  
 SOURCE: Makromolekulare Chemie, Supplement (1985), 14, 55-69  
 CODEN: MCSUEU; ISSN: 0253-5904  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-05-3, uses and miscellaneous 7440-16-6, uses and miscellaneous  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalysts, polymer-coated colloid particles, for hydrogenation of alkenes)  
 RN 7440-05-3 HCAPLUS  
 CN Palladium (8CI, 9CI) (CA INDEX NAME)

## Pd

RN 7440-16-6 HCAPLUS  
CN Rhodium (8CI, 9CI) (CA INDEX NAME)

## Rh

IT 7440-50-8, uses and miscellaneous  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, polymer-coated colloid, for hydration  
of acrylonitrile)  
RN 7440-50-8 HCAPLUS  
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

## Cu

AB Colloidal dispersions of various metals in liquid are prepared by reduction of  
the corresponding metal salts in the presence of protective polymer. The average  
diams. of the metal particles are controlled in the range 9-150 Å by  
using appropriate species of protective polymers, reducing reagents, and  
additives. The colloidal Rh of 9 Å in average diameter has a high catalytic  
activity for hydrogenation of internal olefins. The colloidal Pd of 18  
Å in average diameter exhibits a high catalytic selectivity for hydrogenation  
of diene to monoene. The protective polymers, e.g., poly(vinyl  
alc.), poly(N-vinyl-2-pyrrolidone), play an important role in  
stabilizing the colloidal dispersion as a protective colloid and in  
increasing the catalytic selectivity through the interaction with the  
metal particles. A PhMe solution of AlCuCl<sub>4</sub> protected by cross-linked  
polystyrene was prepared as a solid adsorbent of CO. The polymer protects  
the water-sensitive metal complex against H<sub>2</sub>O contained in the gas. The  
protecting effect of polymer depends on the species of solvent used in the  
preparation of solid adsorbent. The polymer effect is discussed on the basis  
of the interactions of the metal complex with the polymer and with the  
solvent.  
CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
Section cross-reference(s): 23, 37  
IT Hydrogenation catalysts  
(palladium or rhodium colloids, coated with polymers, for alkenes)  
IT 7440-05-3, uses and miscellaneous 7440-16-6, uses and  
miscellaneous  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, polymer-coated colloid particles, for  
hydrogenation of alkenes)  
IT 7440-50-8, uses and miscellaneous  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, polymer-coated colloid, for hydration  
of acrylonitrile)

L83 ANSWER 19 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 1985:429207 HCAPLUS  
DOCUMENT NUMBER: 103:29207  
TITLE: Internal short-circuit battery-type catalysts for  
oxidation or reduction of organic compounds

PATENT ASSIGNEE(S) : Japan Storage Battery Co., Ltd., Japan  
 SOURCE : Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60044051	A2	19850308	JP 1983-151133	19830818 <--
PRIORITY APPLN. INFO.:			JP 1983-151133	19830818 <--
IT 7440-06-4, uses and miscellaneous	7440-16-6, uses and			
miscellaneous				
RL: CAT (Catalyst use); USES (Uses)				
(catalysts, short-circuit battery-type, sulfo group-containing				
fluoropolymers coated with, with PTFE binder)				
RN 7440-06-4	HCAPLUS			
CN Platinum (8CI, 9CI)	(CA INDEX NAME)			

Pt

RN 7440-16-6 HCAPLUS  
 CN Rhodium (8CI, 9CI) (CA INDEX NAME)

Rh

AB Mixts. of ion exchanging resin powders (or short fibers) coated with metal effective for electrolytic reduction of oxidants and those coated with metal effective for electrolytic oxidation of reductants are found by fluoro resins to give title catalysts. Thus, Pt-coated resin, prepared by treating perfluorocarbon containing SO<sub>3</sub>H group 1st with hydrazine and then with chloroplatinic acid, and Rh-coated resin, prepared similarly, were mixed with H<sub>2</sub>O, kneaded with PTFE, vacuum dried, and pelletized to give catalysts. Aqueous MeOH containing the catalysts was bubbled with air to give HCHO with 47% conversion in 1 h vs. 7% using fluoro resin-bound Pt black.

IC ICM B01J031-26  
 ICA C07C045-38; C07C047-052; C25B003-02; C25B003-04  
 CC 72-2 (Electrochemistry)  
 Section cross-reference(s): 23, 67

ST oxidn catalyst metal coated resin; redn catalyst metal coated resin; catalyst oxidn redn; formaldehyde prepn catalytic oxidn; electroredn catalyst metal coated fluoropolymer; electrooxidn catalyst metal coated fluoropolymer

IT **Oxidation catalysts**  
**Reduction catalysts**  
 (electrochem., metal-coated ion-exchanging resin powders or fibers with fluoropolymer resin binders, for organic compds.)

IT 7440-06-4, uses and miscellaneous 7440-16-6, uses and

miscellaneous

RL: CAT (Catalyst use); USES (Uses)

(catalysts, short-circuit battery-type, sulfo group-containing fluoropolymers coated with, with PTFE binder)

L83 ANSWER 20 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1985:429206 HCAPLUS

DOCUMENT NUMBER: 103:29206  
 TITLE: Internal short-circuit battery-type catalysts for oxidation or reduction of organic compounds  
 PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60044052	A2	19850308	JP 1983-151136	19830818 <--
PRIORITY APPLN. INFO.:			JP 1983-151136	19830818 <--
IT	7440-06-4, uses and miscellaneous	7440-16-6, uses and miscellaneous		
RL	CAT (Catalyst use); USES (Uses)	(catalysts from sulfo group-containing fluoropolymer coated with, short-circuit battery-type, with uncoated fluoropolymer and PTFE binder)		
RN	7440-06-4 HCAPLUS			
CN	Platinum (8CI, 9CI) (CA INDEX NAME)			

## Pt

RN 7440-16-6 HCAPLUS  
 CN Rhodium (8CI, 9CI) (CA INDEX NAME)

## Rh

AB Mixts. of (1) ion exchange resin powders (or short fibers) coated with metal effective for electrolytic reduction of oxidants, (2) those coated with metal effective for electrolytic oxidation of reductants, and (3) those uncoated are bonded by fluoro resin to give title catalysts. Thus, Pt-coated resin, prepared by treating perfluorocarbon containing SO<sub>3</sub>H group 1st with hydrazine and then with chloroplatinic acid, Rh-coated resin prepared similarly, and uncoated resins were mixed with H<sub>2</sub>O, kneaded with PTFE, vacuum dried, and pelletized to give catalysts. Aqueous MeOH containing the catalysts was bubbled with air to give HCHO with 47% conversion in 1 h vs. 7% using fluoro resin-bonded Pt black.  
 IC ICM B01J031-26  
 ICA C07C045-38; C07C047-052; C25B003-02; C25B003-04  
 CC 72-2 (Electrochemistry)  
 Section cross-reference(s): 23, 67  
 ST oxidn catalyst metal coated resin; redn catalyst metal coated resin; catalyst oxidn redn; formaldehyde prep catalyst; electroredn catalyst coated fluoropolymer; electrooxidn catalyst coated fluoropolymer  
 IT **Oxidation catalysts**  
**Reduction catalysts**  
 (electrochem., metal-coated sulfo group-containing fluoropolymers and uncoated sulfo group-containing fluoropolymers bond with fluoropolymers, for organic compds.)  
 IT 7440-06-4, uses and miscellaneous 7440-16-6, uses and miscellaneous

RL: CAT (Catalyst use); USES (Uses)  
(catalysts from sulfo group-containing fluoropolymer  
coated with, short-circuit battery-type, with uncoated  
fluoropolymer and PTFE binder)

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LAST RELOADED: Aug 27, 2004 (20040827/UP).

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L97 ANSWER 1 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 2002:273019 HCAPLUS  
DOCUMENT NUMBER: 136:312497  
TITLE: Liquid fuel fuel cell  
INVENTOR(S): Oaka, Tetsuya; Kadoma, Satoyuki  
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan;  
Waseda University  
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002110190	A2	20020412	JP 2000-292976	20000926 <--
PRIORITY APPLN. INFO.:			JP 2000-292976	20000926 <--
IT 7440-06-4, Platinum, uses 7440-18-8, Ruthenium, uses				
RL: CAT (Catalyst use); USES (Uses)				
(electrode catalyst layers containing heterocyclic polymer compound coated catalyst particle for fuel cells using liquid fuels)				
RN 7440-06-4 HCAPLUS				
CN Platinum (8CI, 9CI) (CA INDEX NAME)				

Pt

RN 7440-18-8 HCAPLUS  
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

AB The fuel cell has a H<sup>+</sup> conductive polymer electrolyte membrane, a pair of electrodes holding the membrane, and means supplying a liquid fuel to 1 electrode and an oxidant to the other electrode; where the electrodes has

a catalyst layer connected to the electrolyte membrane, and the electrolyte layer contains H<sup>+</sup> conducting polymer compound loaded catalyst particles at least on its surface. The electrolyte membrane may be a composite containing a H<sup>+</sup> conductive polymer electrolyte and a polymer compound impermeable for the liquid fuel. The polymer compound is preferably a heterocyclic compound, and the fuel is selected from alcs., ethers, and ketones.

IC ICM H01M008-02  
 ICS H01M008-02; B01D069-02; B01D071-82; H01M004-86; H01M008-10;  
 B01D071-34  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 IT 7440-06-4, Platinum, uses 7440-18-8, Ruthenium, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (electrode catalyst layers containing heterocyclic polymer compound  
 coated catalyst particle for fuel cells using liquid fuels)

=> d 197 ibib hitstr abs hitind 2-20  
 YOU HAVE REQUESTED DATA FROM FILE 'HCAPLUS' - CONTINUE? (Y)/N:y

L97 ANSWER 2 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 2000:420559 HCAPLUS  
 DOCUMENT NUMBER: 133:32683  
 TITLE: Fuel cell electrodes and their manufacture  
 INVENTOR(S): Hitomi, Shuji  
 PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 3  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000173624	A2	20000623	JP 1999-78885	19990324 <--
DE 10004955	A1	20000817	DE 2000-10004955	20000204 <--
PRIORITY APPLN. INFO.:			JP 1998-296157	A 19981003 <--
			JP 1999-29045	A 19990205 <--
			JP 1999-78885	A 19990324 <--
			JP 1999-78889	A 19990324 <--

IT 7440-06-4, Platinum, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (structure and manufacture of fuel cell electrodes containing polymer  
 electrolyte-catalyst layer on porous polymer coated  
 carbon substrates)

RN 7440-06-4 HCAPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

AB The electrodes have a catalyst layer containing a solid polymer electrolyte on a porous conductive substrate, where the substrate contains a porous resin. The electrodes are prepared by: impregnating a porous conductive material with a solution of a resin dissolved in a 1st solvent, immersing the impregnated material in a 2nd solvent miscible with the 1st solvent but

insol. for the resin to form a porous resin layer on the material, and joining the material with an electrolyte containing catalyst layer.

IC ICM H01M004-86

ICS H01M004-88; H01M008-02; H01M008-10

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 7440-06-4, Platinum, uses

RL: CAT (Catalyst use); USES (Uses)

(structure and manufacture of fuel cell electrodes containing polymer electrolyte-catalyst layer on porous polymer coated carbon substrates)

L97 ANSWER 3 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:325161 HCPLUS

DOCUMENT NUMBER: 133:30834

TITLE: Selective hydrogenation of citronellal to citronellol over polymer-stabilized noble metal colloids

AUTHOR(S): Yu, Weiyong; Liu, Hanfan; Liu, Manhong; Liu, Zhijie

CORPORATE SOURCE: Polymer Chemistry Laboratory, Chinese Academy of Sciences and China PetroChemical Corporation, Beijing, 100080, Peop. Rep. China

SOURCE: Reactive & Functional Polymers (2000),

44(1), 21-29

CODEN: RFPOF6; ISSN: 1381-5148

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 133:30834

IT 7440-06-4, Platinum, uses 7440-18-8, Ruthenium, use

RL: CAT (Catalyst use); USES (Uses)

(selective hydrogenation of citronellal to citro polymer-stabilized noble metal colloids)

RN 7440-06-4 HCPLUS

CN Platinum (8CI, 9CI) (CA INDEX NAME)

*note?*  
*2/3/02.*

Pt

RN 7440-18-8 HCPLUS

CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

AB Citronellal was hydrogenated to citronellol by polymer-stabilized Pt and Ru colloids. The metal cations increased both the activity and the selectivity of the colloids. The modification was assumed to be due to the adsorbed metal cations activating the C=O double bonds, thus accelerating the reaction rate and increasing the selectivity to unsatd. alcs.

CC 30-10 (Terpenes and Terpenoids)

IT 7440-06-4, Platinum, uses 7440-18-8, Ruthenium, uses 9003-39-8, Poly(N-vinyl-2-pyrrolidone)

RL: CAT (Catalyst use); USES (Uses)

(selective hydrogenation of citronellal to citronellol over polymer-stabilized noble metal colloids)

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 4 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 2000:5567 HCAPLUS  
 DOCUMENT NUMBER: 132:41025  
 TITLE: Chemisorption measurements on polymer-stabilized  
       colloidal platinum and rhodium nanoclusters in liquid  
       dispersion  
 AUTHOR(S): Bradley, John S.; Busser, Wilma  
 CORPORATE SOURCE: Max-Planck-Institut fur Kohlenforschung, Mulheim an  
                   der Ruhr, D-45470, Germany  
 SOURCE: Catalysis Letters (1999), 63(3,4), 127-130  
 CODEN: CALEER; ISSN: 1011-372X  
 PUBLISHER: Baltzer Science Publishers  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses  
     RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
       (chemisorption measurements on polymer-stabilized  
       colloidal platinum and rhodium nanoclusters in liquid dispersion)  
 RN 7440-06-4 HCAPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

## Pt

RN 7440-16-6 HCAPLUS  
 CN Rhodium (8CI, 9CI) (CA INDEX NAME)

## Rh

AB A simple method is reported for the precise and accurate differential barometric measurement of gas adsorption into liquid dispersions of colloidal metal catalysts. Using both hydrogen adsorption and hydrogen/oxygen titration the fraction of the total surface of polyvinylpyrrolidone-stabilized Pt and Rh colloids available for adsorption is found to be approx. 44%. This method is also applicable to supported metal catalysts in liquid slurries.  
 CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 66  
 IT 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses  
     9003-39-8, Polyvinylpyrrolidone  
     RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
       (chemisorption measurements on polymer-stabilized  
       colloidal platinum and rhodium nanoclusters in liquid dispersion)  
 REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS  
                   RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 5 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1999:281538 HCAPLUS  
 DOCUMENT NUMBER: 130:317963  
 TITLE: Incorporation of catalytic noble metals in conductive  
       polymer film-coated electrode and electrocatalytic  
       hydrogenation  
 AUTHOR(S): Takano, Nobuhiro; Nakade, Akihito  
 CORPORATE SOURCE: Department of Applied Chemistry, Muroran Institute of  
                   Technology, Mizumoto-cho, Muroran, 050-8585, Japan  
 SOURCE: Electrochemistry (Tokyo) (1999), 67(5),  
       463-465

PUBLISHER: CODEN: EECTFA; ISSN: 1344-3542  
 Electrochemical Society of Japan  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Japanese  
 IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses  
 7440-16-6, Rhodium, uses  
 RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (incorporation of catalytic noble metals in conductive polymer film-coated electrode and electrocatalytic hydrogenation)  
 RN 7440-05-3 HCAPLUS  
 CN Palladium (8CI, 9CI) (CA INDEX NAME)

Pd

RN 7440-06-4 HCAPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

RN 7440-16-6 HCAPLUS  
 CN Rhodium (8CI, 9CI) (CA INDEX NAME)

Rh

AB Catalytic film electrodes which were coated with poly [N-(5-hydroxypentyl) pyrrole] film and incorporated catalytic noble metals such as platinum, rhodium, and gold in the film were prepared. The order of incorporating amount in the film was gold, platinum, and rhodium. By use of these catalytic electrodes the electrochem. hydrogenation of Me benzoylformate in an ethanol-HCl buffer solution was investigated. The hydrogenation on all catalytic electrodes provided Me mandelate and the efficiency was good particularly on the electrode incorporating gold metal.  
 CC 72-2 (Electrochemistry)  
 IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses  
 7440-16-6, Rhodium, uses 7440-57-5, Gold, uses  
 RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (incorporation of catalytic noble metals in conductive polymer film-coated electrode and electrocatalytic hydrogenation)

L97 ANSWER 6 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1998:809072 HCAPLUS  
 DOCUMENT NUMBER: 130:130381  
 TITLE: Preparation, characterization, and catalytic properties of polymer-stabilized ruthenium colloids  
 AUTHOR(S): Yu, Weiyong; Liu, Manhong; Liu, Hanfan; Ma, Xiaomong; Liu, Zhijie  
 CORPORATE SOURCE: Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China  
 SOURCE: Journal of Colloid and Interface Science (1998 ), 208(2), 439-444  
 CODEN: JCISA5; ISSN: 0021-9797  
 PUBLISHER: Academic Press

DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-18-8, Ruthenium, uses  
   RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
     (preparation, characterization, and catalytic properties of polymer  
       -stabilized ruthenium colloids)  
 RN 7440-18-8 HCAPLUS  
 CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

AB Poly(N-vinyl-2-pyrrolidone) (PVP)-stabilized ruthenium colloids were prepared by NaBH<sub>4</sub> reduction at room temperature and characterized by transmission electron microscopy and x-ray photoelectron spectra. The average diams. of the colloids were 1.3-1.8 nm with  $\sigma$  = 0.4-0.7 nm with respect to the preparation conditions. The PVP-stabilized ruthenium colloids were used as catalysts in the hydrogenations of cyclooctene and n-heptene and the selective hydrogenation of citronellal to citronellol. (c) 1998 Academic Press.  
 CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 23, 24, 38, 66  
 IT 7440-18-8, Ruthenium, uses 9003-39-8, Poly(N-vinyl-2-pyrrolidone)  
   RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
     (preparation, characterization, and catalytic properties of polymer  
       -stabilized ruthenium colloids)  
 REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 7 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1998:683087 HCAPLUS  
 DOCUMENT NUMBER: 129:316649  
 TITLE: Novel biodegradable copolymers containing pendant amine functional groups based on aspartic acid and poly(ethylene glycol)  
 AUTHOR(S): Won, Chee-Youb; Chu, Chih-Chang; Lee, Jong Doo  
 CORPORATE SOURCE: Fiber and Polymer Science Program, Dep. Textiles and Apparel, Cornell Univ., Ithaca, NY, 14853, USA  
 SOURCE: Polymer (1998), 39(25), 6677-6681  
 CODEN: POLMAG; ISSN: 0032-3861  
 PUBLISHER: Elsevier Science Ltd.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-05-3, Palladium, uses  
   RL: CAT (Catalyst use); USES (Uses)  
     (charcoal-supported, with 1,4-cyclohexadiene; polymer deprotection over)  
 RN 7440-05-3 HCAPLUS  
 CN Palladium (8CI, 9CI) (CA INDEX NAME)

Pd

AB A new biodegradable poly(L-aspartic acid-co-poly(ethylene glycol)) having pendant amine functional groups was synthesized by the melt polycondensation reaction of prepolymer prepared from N-(benzyloxycarbonyl)-

L-aspartic acid anhydride (N-Z-L-aspartic acid anhydride) and poly(ethylene glycol). The synthesized polymer was characterized by FTi.r., 1H n.m.r., d.s.c., g.p.c. and solubility. The weight-average mol. weight of the

prepolymer increased about 11 times via melt polycondensation at 160°C in a vacuum for <1 h.

CC 35-5 (Chemistry of Synthetic High Polymers)

IT 7440-05-3, Palladium, uses

RL: CAT (Catalyst use); USES (Uses)  
(charcoal-supported, with 1,4-cyclohexadiene; polymer deprotection over)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 8 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1997:646212 HCPLUS

DOCUMENT NUMBER: 127:339104

TITLE: Polymer-protected Pt/Ru bimetallic cluster catalysts for visible-light-induced hydrogen generation from water and electron transfer dynamics

AUTHOR(S): Toshima, Naoki; Hirakawa, Kazutaka

CORPORATE SOURCE: Department of Materials Science and Engineering, Science University of Tokyo in Yamaguchi, Onoda-shi, Yamaguchi, 756, Japan

SOURCE: Applied Surface Science (1997), 121/122, 534-537

CODEN: ASUSEE; ISSN: 0169-4332

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

IT 7440-06-4, Platinum, uses 7440-18-8, Ruthenium, uses

RL: CAT (Catalyst use); USES (Uses)  
(polymer-protected Pt/Ru bimetallic cluster catalysts for visible-light-induced H<sub>2</sub> generation from H<sub>2</sub>O and electron transfer dynamics)

RN 7440-06-4 HCPLUS

CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

RN 7440-18-8 HCPLUS

CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

AB Colloidal dispersions of platinum/ruthenium bimetallic clusters, as well as those of platinum and ruthenium monometallic clusters, were prepared by alc. reduction and applied to visible-light-induced hydrogen generation in the electron transfer system of tris(bipyridine)ruthenium(II) dichloride/methyl viologen dichloride/metal cluster/EDTA disodium salt. Hydrogen generation rates are in proportion to the concentration of cluster metal

at low concentration (about 10<sup>-6</sup> to 10<sup>-5</sup> mol dm<sup>-3</sup>), where the platinum/ruthenium

bimetallic cluster is more active as a catalyst than platinum and ruthenium monometallic clusters. In addition, even the phys. mixture of

platinum and ruthenium monometallic clusters is more active than platinum and ruthenium monometallic clusters. Electron transfer rates from the Me viologen radical cation to metal clusters were measured as well and compared with the hydrogen generation rates. Thus, both rates are in proportion to each other, suggesting that the hydrogen generation rate can be controlled by the electron transfer rate.

CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s) : 67  
 IT 7440-06-4, Platinum, uses 7440-18-8, Ruthenium, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (polymer-protected Pt/Ru bimetallic cluster catalysts for visible-light-induced H<sub>2</sub> generation from H<sub>2</sub>O and electron transfer dynamics)  
 REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 9 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1997:430587 HCPLUS  
 DOCUMENT NUMBER: 127:196024  
 TITLE: Immobilization of polymer-stabilized noble metal colloids and their catalytic properties for hydrogenation of olefins  
 AUTHOR(S): Wang, Qian; Liu, Hanfan; Wang, Hongge  
 CORPORATE SOURCE: Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China  
 SOURCE: Journal of Colloid and Interface Science (1997 ), 190(2), 380-386  
 CODEN: JCISA5; ISSN: 0021-9797  
 PUBLISHER: Academic  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses  
 7440-16-6, Rhodium, uses  
 RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
 (immobilization of polymer-stabilized noble metal colloids and their catalytic properties for hydrogenation of olefins)  
 RN 7440-05-3 HCPLUS  
 CN Palladium (8CI, 9CI) (CA INDEX NAME)

## Pd

RN 7440-06-4 HCPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

## Pt

RN 7440-16-6 HCPLUS  
 CN Rhodium (8CI, 9CI) (CA INDEX NAME)

## Rh

AB Polymer-stabilized noble metal colloids were efficiently immobilized on

silica by the addition of organic acids under mild conditions. The function of organic acids in the immobilization was studied by IR spectroscopy. Transmission electron micrographs indicate that the immobilized colloids have a controlled particle size and size distribution. They serve as catalysts in the hydrogenation of cyclohexene and cyclopentadiene, the results of which show that this new type of immobilized colloid has high selectivity and good stability.

- CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 24, 38, 66  
 IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses  
 7440-16-6, Rhodium, uses 7631-86-9, Silica, uses 9002-89-5,  
 PVA 9003-39-8, PVP  
 RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
 (immobilization of polymer-stabilized noble metal  
 colloids and their catalytic properties for hydrogenation of olefins)

L97 ANSWER 10 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1997:191430 HCPLUS  
 DOCUMENT NUMBER: 126:263733  
 TITLE: Carbonylation of methanol catalyzed by  
 polymer-protected rhodium colloid  
 AUTHOR(S): Wang, Qian; Liu, Hanfan; Han, Ming; Li, Xiaobao;  
 Jiang, Dazhi  
 CORPORATE SOURCE: Division of Polymer Chemistry, Institute of Chemistry,  
 Chinese Academy of Sciences, Beijing, 100080, Peop.  
 Rep. China  
 SOURCE: Journal of Molecular Catalysis A: Chemical (1997), 118(2), 145-151  
 CODEN: JMCCF2; ISSN: 1381-1169  
 PUBLISHER: Elsevier  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-16-6D, Rhodium, poly(N-vinyl-2-pyrrolidone) polymer  
 -protected, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (carbonylation of methanol catalyzed by polymer-  
 protected rhodium colloid)  
 RN 7440-16-6 HCPLUS  
 CN Rhodium (8CI, 9CI) (CA INDEX NAME)

Rh

- AB Poly(N-vinyl-2-pyrrolidone) (PVP) protected rhodium colloid (Rh-PVP) was used as a catalyst for methanol carbonylation under elevated temperature (140°) and high pressure (5.4 MPa). The activity of Rh-PVP colloid catalyst increased while recycled for 6 times totally lasting 56.5 h. During the reaction, the catalyst was still in a colloidal state verified by TEM observation. XPS and IR studies of the catalyst demonstrated that colloidal rhodium metal particles partially changed to [Rh(CO)2I2]- under the reaction conditions. The rhodium ions in the reaction mixture amounted to 29 of the total charged rhodium after 13 h carbonylation. An addnl. XPS investigation of the catalyst was carried out; the results showed that oxidative addition of Me iodide to rhodium colloid caused the transformation of rhodium species from Rh0 to Rh1+.
- CC 22-4 (Physical Organic Chemistry)  
 Section cross-reference(s): 67  
 IT 7440-16-6D, Rhodium, poly(N-vinyl-2-pyrrolidone) polymer

-protected, uses 9003-39-8D, rhodium-colloid  
 RL: CAT (Catalyst use); USES (Uses)  
 (carbonylation of methanol catalyzed by polymer-  
 protected rhodium colloid)

L97 ANSWER 11 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1996:514076 HCAPLUS  
 DOCUMENT NUMBER: 125:178515  
 TITLE: Preparation of polymer-protected colloidal dispersions  
 of copper as catalysts  
 AUTHOR(S): Ma, Sunhua; Liu, Xinpeng; Xia, Shaowu; Li, Jinshan  
 CORPORATE SOURCE: Department Applied Chemistry, Qingdao Institute  
 Chemical Technology, Tsingtao, Peop. Rep. China  
 SOURCE: Qingdao Huagong Xueyuan Xuebao (1996),  
 17(2), 155-159, 162  
 CODEN: QHUXEQ; ISSN: 1001-4764  
 PUBLISHER: Qingdao Huagong Xueyuan Xuebao Bianjibu  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Chinese  
 IT 7440-50-8P, Copper, uses  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP  
 (Preparation); USES (Uses)  
 (preparation of polymer-protected colloidal dispersions  
 of copper as catalysts)  
 RN 7440-50-8 HCAPLUS  
 CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

## Cu

AB Colloidal copper dispersions are prepared by reducing copper(II) chloride  
 solution in water with hydrazine and sodium hydroxide in the presence of  
 protected polymer of poly(N-vinyl-2-pyrrolidone). The dispersions are  
 stable under air at room temperature and are highly active catalysts for  
 hydration of acrylonitrile to acrylamide. The conditions and method of  
 preparation of polymer protected colloidal dispersions of copper as catalysts  
 are expounded, and the exptl. results are theor. discussed.  
 CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 35, 66  
 IT 7440-50-8P, Copper, uses  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP  
 (Preparation); USES (Uses)  
 (preparation of polymer-protected colloidal dispersions  
 of copper as catalysts)

L97 ANSWER 12 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1996:282726 HCAPLUS  
 DOCUMENT NUMBER: 125:33124  
 TITLE: Reaction conducted under rather severe conditions for  
 a colloidal catalyst - hydroformylation of propylene  
 catalyzed by polymer-protected rhodium colloids  
 AUTHOR(S): Han, Ming; Liu, Hanfan  
 CORPORATE SOURCE: Div. Polymer Chem., Inst. Chem., Chinese Acad. Sci.,  
 Beijing, 100080, Peop. Rep. China  
 SOURCE: Macromolecular Symposia (1996), 105(6th  
 International Symposium on Macromolecule-Metal  
 Complexes, 1995), 179-183  
 CODEN: MSYMEC; ISSN: 1022-1360  
 PUBLISHER: Huethig & Wepf

DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-16-6, Rhodium, uses  
   RL: CAT (Catalyst use); USES (Uses)  
     (hydroformylation of propylene catalyzed by polymer-  
       protected rhodium colloids)  
 RN 7440-16-6 HCAPLUS  
 CN Rhodium (8CI, 9CI) (CA INDEX NAME)

Rh

AB A symposium. Hydroformylation of propylene has been conducted by a polymer-protected rhodium colloid catalyst with an activity of 130 mol butanal/g atom Rh·h. The neat colloid catalyst is stable enough for repeated use for 7 times lasting .apprx.50 h under the reaction condition (temperature: 363 K, pressure: 40 bar) with a total TON of 5,065 cycle/atom Rh.  
 CC 23-14 (Aliphatic Compounds)  
 IT 7440-16-6, Rhodium, uses  
   RL: CAT (Catalyst use); USES (Uses)  
     (hydroformylation of propylene catalyzed by polymer-  
       protected rhodium colloids)

L97 ANSWER 13 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1996:180991 HCAPLUS  
 DOCUMENT NUMBER: 124:342327  
 TITLE: Carbonylation of methanol catalyzed by polymer-protected rhodium colloids under rather severe conditions  
 AUTHOR(S): Wang, Qian; Liu, Hanfan; Han, Ming; Li, Xiaobao;  
               Jiang, Dazhi  
 CORPORATE SOURCE: Institute Chemistry, Chinese Academy Sciences,  
                   Beijing, 100080, Peop. Rep. China  
 SOURCE: Cuihua Xuebao (1996), 17(1), 3-4  
                   CODEN: THHPD3; ISSN: 0253-9837  
 PUBLISHER: Kexue  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-16-6D, Rhodium, PVP tied colloidal  
   RL: CAT (Catalyst use); USES (Uses)  
     (carbonylation of methanol catalyzed by polymer-  
       protected rhodium colloids)  
 RN 7440-16-6 HCAPLUS  
 CN Rhodium (8CI, 9CI) (CA INDEX NAME)

Rh

AB The title reaction, using a stable reusable colloidal Rh-PVP catalyst at 413 K, involved a homogeneous catalytic mechanism. The turn-over number reached 19 700 cycle/Rh; the Arrhenius kinetics were discussed.  
 CC 22-4 (Physical Organic Chemistry)  
   Section cross-reference(s): 67  
 IT 7440-16-6D, Rhodium, PVP tied colloidal 9003-39-8, PVP  
   10049-07-7, Rhodium trichloride  
   RL: CAT (Catalyst use); USES (Uses)  
     (carbonylation of methanol catalyzed by polymer-

**protected rhodium colloids)**

L97 ANSWER 14 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1995:1003113 HCAPLUS  
 DOCUMENT NUMBER: 124:67847  
 TITLE: 195Pt NMR of Polymer-Protected Pt/Pd Bimetallic Catalysts  
 AUTHOR(S): Tong, Y. Y.; Yonezawa, Tetsu; Toshima, Naoki; van der Klink, J. J.  
 CORPORATE SOURCE: Institut de Physique Experimentale, Ecole Polytechnique Federale, Lausanne, CH-1015, Switz.  
 SOURCE: Journal of Physical Chemistry (1996), 100(2), 730-3  
 CODEN: JPCHAX; ISSN: 0022-3654  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses  
 RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
 (195Pt NMR of polymer-protected Pt/Pd bimetallic catalysts)  
 RN 7440-05-3 HCAPLUS  
 CN Palladium (8CI, 9CI) (CA INDEX NAME)

### Pd

RN 7440-06-4 HCAPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

### Pt

AB Colloids of Pt, Pt0.8Pd0.2, and Pt0.2Pd0.8 particles of approx. 2.5 nm diameter with poly(N-vinyl-2-pyrrolidone) as protecting agent were dried, and the 195Pt NMR spectrum and nuclear spin-lattice relaxation rates were measured. The spectra indicate that the particles are indeed bimetallic and that the composition of their interior corresponds well to the nominal value. A strong variation of catalytic activity of these systems with composition around Pt0.2Pd0.8 has been reported in the literature. We suggest that this effect is related to corresponding variations in the local densities of electronic states at the Fermi energy on the surface sites of the catalytic metal.  
 CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 56, 65, 66, 77  
 IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses  
 9003-39-8, Poly(N-vinyl-2-pyrrolidone) 70495-83-9, Palladium 20,  
 platinum 80 (atomic) 70495-87-3, Palladium 80, platinum 20 (atomic)  
 RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
 (195Pt NMR of polymer-protected Pt/Pd bimetallic catalysts)

L97 ANSWER 15 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1995:401701 HCAPLUS  
 DOCUMENT NUMBER: 123:13560  
 TITLE: Modification and characterization of fuel-producing photoelectrodes with new type of organic surface layers

AUTHOR(S) : Baeuerle, P.; Hiller, M.; Goetz, G.; Scheib, S.; Effenberger, F.

CORPORATE SOURCE: Germany

SOURCE: Wasserst. Energietraeger, Kolloq. 1994  
Sonderforschungsbereichs 270 Univ. Stuttgart (1994), 121-32. VDI: Duesseldorf, Germany.  
CODEN: 60ZDA8

DOCUMENT TYPE: Conference; General Review

LANGUAGE: German

IT 7440-16-6D, Rhodium, complexes with polythiophene  
RL: CAT (Catalyst use); USES (Uses)  
(functionalized polythiophene monomers with quinoxaline and Rh complexes and polymer coatings on electrodes for H manufacture)

RN 7440-16-6 HCPLUS

CN Rhodium (8CI, 9CI) (CA INDEX NAME)

Rh

AB A review with 30 refs. on halogenalkyl thiophene monomer, prepared via Ni-catalyzed Grignard reactions and functionalized with quinoxaline or organometallic Rh complexes. Their polymerization on Pt or glassy C electrodes were executed by potentiodynamic or potentiostatic electrooxidn. Polymer films were characterized by cyclic voltammetry. Significant catalytic activity of the Rh complex monomers was determined in aqueous solution on Hg electrodes.

CC 52-0 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 28, 29

IT 7440-16-6D, Rhodium, complexes with polythiophene  
RL: CAT (Catalyst use); USES (Uses)  
(functionalized polythiophene monomers with quinoxaline and Rh complexes and polymer coatings on electrodes for H manufacture)

L97 ANSWER 16 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1994:439002 HCPLUS

DOCUMENT NUMBER: 121:39002

TITLE: Hydrocarbon conversion processes with molecular sieve agglomerates having improved transport properties

INVENTOR(S): Pellet, Regis J.; Gortsema, Frank P.

PATENT ASSIGNEE(S): UOP Inc., USA

SOURCE: U.S., 14 pp. Cont.-in-part of U.S. 5,168,082.  
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5316656	A	19940531	US 1991-702487	19910520 <--
US 5168084	A	19921201	US 1990-519972	19900507 <--
PRIORITY APPLN. INFO.:			US 1990-519972	A2 19900507 <--

IT 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses  
RL: CAT (Catalyst use); USES (Uses)  
(catalyst, for hydrocarbon conversion, on polymer coated SAPO-11 with improved transport properties)

RN 7440-02-0 HCPLUS

CN Nickel (8CI, 9CI) (CA INDEX NAME)

Ni

RN 7440-05-3 HCAPLUS  
 CN Palladium (8CI, 9CI) (CA INDEX NAME)

Pd

AB Mol. sieve agglomerates exhibiting reduced pore mouth blockage and decreased diffusivity resistance to the internal sieve pores result from coating, prior to addition of a binding agent to the sieve, the mol. sieve particles with an organic polymer, fixing the polymer to the sieve surface so that it exhibits no migratory tendencies and subsequently removing the coating by combustion during calcination of the formed agglomerate. Such agglomerates showed enhanced activity and selectivity in typical refining processes such as dewaxing and fluid catalytic cracking. The mol. sieve agglomerates also may be employed in other hydrocarbon conversion processes such as hydrocracking, dehydrocyclization, isomerization, hydrofining, reforming, and dealkylation.  
 IC ICM C10G045-64  
 ICS C10G011-05  
 NCL 208120000  
 CC 51-6 (Fossil Fuels, Derivatives, and Related Products)  
 IT 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses  
 7440-05-3, Palladium, uses 7440-62-2, Vanadium, uses  
 7440-66-6, Zinc, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalyst, for hydrocarbon conversion, on polymer  
 coated SAPO-11 with improved transport properties)

L97 ANSWER 17 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1993:63062 HCAPLUS  
 DOCUMENT NUMBER: 118:63062  
 TITLE: Preparation of polymer-protected gold/platinum  
 bimetallic clusters and their application to visible  
 light-induced hydrogen evolution  
 AUTHOR(S): Toshima, Naoki; Yonezawa, Tetsu  
 CORPORATE SOURCE: Fac. Eng., Univ. Tokyo, Tokyo, 113, Japan  
 SOURCE: Makromolekulare Chemie, Macromolecular Symposia (1992), 59(Int. Symp. Macromol.-Met. Complexes, 4th, 1991), 281-95  
 CODEN: MCMSES; ISSN: 0258-0322  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-06-4, Platinum, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalysts, containing gold, clusters of, preparation of polymer-  
 protected, for visible light-induced hydrogen evolution)  
 RN 7440-06-4 HCAPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

AB The dispersions of polymer-protected Au/Pt bimetallic clusters were easily and reproducibly prepared by refluxing the mixed solns. of HAuCl<sub>4</sub> and H<sub>2</sub>PtCl<sub>6</sub> in EtOH/water (1/1) at 90-95° for 2 h in the presence of a protective polymer, e.g., poly(N-vinyl-2-pyrrolidone) (I). The Au/Pt bimetallic clusters thus obtained were very small, well dispersed, and very stable. The UV-visible spectra and the transmission electron micrographs have indicated that each bimetallic particle has an alloy structure consisting of both Au and Pt atoms and the surface of the cluster particle is rich in Pt atoms and the inner core in Au atoms. The Au/Pt bimetallic clusters were used as the multi-electron redox catalysts for visible light-induced H evolution from water. The rate of H evolution depended on the molar ratio of the Au/Pt bimetallic clusters. The bimetallic clusters having Au/Pt molar ratio 2/3 were the most active catalysts. The in-situ UV-visible spectra during the reaction have indicated that the order of the aggregation in the 2 kinds of metal atoms is very important for structure determination of the Au/Pt bimetallic clusters. The protective polymer I plays a role not only in protecting hydrophobic colloidal particles in an aqueous solution, but also in determining the metal composition of the cluster surface.

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 49, 67, 74

IT 7440-06-4, Platinum, uses

RL: CAT (Catalyst use); USES (Uses)  
(catalysts, containing gold, clusters of, preparation of **polymer-protected**, for visible light-induced hydrogen evolution)

L97 ANSWER 18 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1989:102631 HCAPLUS

DOCUMENT NUMBER: 110:102631

TITLE: Supporting of noble-metal colloidal particles on metal oxide

INVENTOR(S): Deguchi, Ryoji; Fukuoka, Yohei

PATENT ASSIGNEE(S): Asahi Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63242348	A2	19881007	JP 1987-76254	19870331 <--
JP 2549858	B2	19961030		

PRIORITY APPLN. INFO.: JP 1987-76254

19870331 <--

IT 7440-06-4, Platinum, uses and miscellaneous 7440-18-8,  
Ruthenium, uses and miscellaneous

RL: CAT (Catalyst use); USES (Uses)  
(catalysts, supporting of, on metal oxides, **polymer-protected** colloids for)

RN 7440-06-4 HCAPLUS

CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

RN 7440-18-8 HCAPLUS

CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

AB The title method involves mixing a colloidal-particle dispersion, which contains a Group VIII element (e.g., Ru), Ag, or Au and is stabilized using a polymer (e.g., polyvinyl alc.) as protective colloids, with a metal oxide (e.g., ZrO<sub>2</sub>), and heating to make the colloidal particles loose the dispersing property.

IC ICM B01J023-40  
ICS B01J013-00; B01J037-02

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)

IT 7440-06-4, Platinum, uses and miscellaneous 7440-18-8,  
Ruthenium, uses and miscellaneous 7440-22-4, Silver, uses and  
miscellaneous 7440-57-5, Gold, uses and miscellaneous

RL: CAT (Catalyst use); USES (Uses)  
(catalysts, supporting of, on metal oxides, polymer  
protective colloids for)

L97 ANSWER 19 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1983:488598 HCPLUS  
 DOCUMENT NUMBER: 99:88598  
 TITLE: Polymer-protected copper colloids as catalysts for  
selective hydration of acrylonitrile  
 AUTHOR(S): Hirai, Hidefumi; Wakabayashi, Hidehiko; Komiyama,  
Makoto  
 CORPORATE SOURCE: Fac. Eng., Univ. Tokyo, Tokyo, 113, Japan  
 SOURCE: Chemistry Letters (1983), (7), 1047-50  
 CODEN: CMLTAG; ISSN: 0366-7022  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-50-8, uses and miscellaneous  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalysts, for hydration of acrylonitrile to acrylamide,  
polymeric protective colloids for)  
 RN 7440-50-8 HCPLUS  
 CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

AB Stable colloidal dispersions of Cu in water are prepared by the reduction of copper sulfate with sodium tetrahydroborate in the presence of poly(vinylpyrrolidone) [9003-39-8], poly(vinyl alc.) [9002-89-5], dextrin [9004-53-9], or poly(Me vinyl ether) [9003-09-2]. The poly(vinylpyrrolidone)-protected Cu colloids are effective for the selective catalysis in hydration of acrylonitrile [107-13-1] to acrylamide [79-06-1] at 80° in water.

CC 35-2 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 23, 67

IT 7440-50-8, uses and miscellaneous  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalysts, for hydration of acrylonitrile to acrylamide,  
polymeric protective colloids for)

L97 ANSWER 20 OF 20 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1982:431210 HCPLUS  
 DOCUMENT NUMBER: 97:31210

TITLE : Photolytic hydrogen production from water  
 INVENTOR(S) : Gratzel, Michael; Brugger, Pierre Alain; Cuendet, Pierre  
 PATENT ASSIGNEE(S) : Engelhard Corp., USA  
 SOURCE : Fr. Demande, 37 pp.  
 CODEN: FRXXBL  
 DOCUMENT TYPE : Patent  
 LANGUAGE : French  
 FAMILY ACC. NUM. COUNT : 1  
 PATENT INFORMATION :

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2486511	A1	19820115	FR 1981-13247	19810706 <--
FR 2486511	B1	19861024		
GB 2079170	A	19820120	GB 1980-22339	19800708 <--
GB 2079170	B2	19850103		
AU 8171124	A1	19820114	AU 1981-71124	19810528 <--
AU 541624	B2	19850117		
IL 62998	A1	19840531	IL 1981-62998	19810529 <--
ZA 8103758	A	19830126	ZA 1981-3758	19810604 <--
NL 8103048	A	19820201	NL 1981-3048	19810624 <--
US 4367131	A	19830104	US 1981-279909	19810702 <--
CH 647690	A	19850215	CH 1981-4384	19810703 <--
IN 155330	A	19850119	IN 1981-CA745	19810704 <--
BR 8104306	A	19820323	BR 1981-4306	19810706 <--
SE 8104232	A	19820109	SE 1981-4232	19810707 <--
JP 57048345	A2	19820319	JP 1981-105172	19810707 <--
DE 3126797	A1	19820415	DE 1981-3126797	19810707 <--
ES 503715	A1	19821101	ES 1981-503715	19810707 <--
CA 1151139	A1	19830802	CA 1981-381334	19810708 <--
			GB 1980-22339	19800708 <--

## PRIORITY APPLN. INFO.:

IT 7440-06-4, uses and miscellaneous

RL: CAT (Catalyst use); USES (Uses)  
 (catalyst, polymer-protected, for hydrogen production  
 in photolysis of water)

RN 7440-06-4 HCAPLUS

CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

AB A catalyst capable of forming a stable dispersion in an aqueous solution to cause

the release of H<sub>2</sub> from H<sub>2</sub>O by photolysis consists of a mixture of ≥1 finely divided noble metals (e.g. Pt, Pd, Rh, Ru, Ir, Os, Ag, and/or Au, preferably Pt or Pd) and a water-permeable protective agent, capable of adsorbing the metal and consisting of ≥1 alkenyl glycol polymers with monomer units -O(CH<sub>2</sub>)<sub>n</sub>O-, where n > 1 and in at least part of the polymer n ≥ 3 (e.g., ethylene glycol-propylene glycol copolymer or Carbowax 2M). The catalyst is prepared by reducing a noble metal or a noble metal compound (e.g. H<sub>2</sub>PtCl<sub>6</sub>) in aqueous solution and adding the protective agent.

Thus, an aqueous solution containing a photosensitizer (e.g. Ru(bipy)<sub>3</sub>2+) was irradiated by visible light for >50 min, the excited photosensitizer was contacted with an electron acceptor (e.g., methyl violet) to give a reduced acceptor in aqueous solution in the presence of an electron donor (e.g. EDTA), and the stabilized and finely dispersed catalyst reduced H<sub>2</sub>O to form gaseous H<sub>2</sub>. The highest H<sub>2</sub> yields were obtained with carbowax 20-M,

PAA 26000, hydroxyethyl cellulose, and Alcotex-99 as protective polymers.  
 IC C01B003-16; B01J031-06; B01J037-00  
 CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 51, 67  
 IT 7440-06-4, uses and miscellaneous  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalyst, polymer-protected, for hydrogen production in photolysis of water)

=> d l158 ibib hitstr abs hitind  
 YOU HAVE REQUESTED DATA FROM FILE 'HCAPLUS' - CONTINUE? (Y)/N:y

L158 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 2000:392853 HCAPLUS  
 DOCUMENT NUMBER: 133:21598  
 TITLE: Coated oxidation catalyst for decomposition of halogen-containing organic compounds, its manufacture, and treatment of waste gas  
 INVENTOR(S): Fujisawa, Masatoshi; Kato, Yasuyoshi  
 PATENT ASSIGNEE(S): Babcock-Hitachi K. K., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000157872	A2	20000613	JP 1998-337767	19981127 <--
PRIORITY APPLN. INFO.:			JP 1998-337767	19981127 <--
IT 7440-02-0, Nickel, processes 7440-05-3, Palladium, processes 7440-06-4, Platinum, processes 7440-16-6, Rhodium, processes 7440-18-8, Ruthenium, processes 7440-50-8, Copper, processes				
RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses) (porous polymer-coated oxidation catalyst for decomposition of halogen-containing organic compds. in waste gas)				
RN 7440-02-0 HCAPLUS				
CN Nickel (8CI, 9CI) (CA INDEX NAME)				

Ni

RN 7440-05-3 HCAPLUS  
 CN Palladium (8CI, 9CI) (CA INDEX NAME)

Pd

RN 7440-06-4 HCAPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

RN 7440-16-6 HCPLUS  
CN Rhodium (8CI, 9CI) (CA INDEX NAME)

Rh

RN 7440-18-8 HCPLUS  
CN Ruthenium (8CI, 9CI) (CA INDEX NAME)

Ru

RN 7440-50-8 HCPLUS  
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

AB A slurry or emulsion of a porous organic component optionally containing inorg. oxide particles or catalyst particles is applied on an **oxidation** catalyst and dried for formation of a porous coating. Waste gas containing deliquescent substances (e.g. alkali metals and alkaline earth metals) is treated with the coated **oxidation** catalyst at 120-350° for decomposition of halogen-containing organic compds., such as dioxin. The coating prevents the **oxidation** catalyst from deteriorating in catalytic activity caused by deliquescent substances.

IC ICM B01J033-00  
ICS B01D053-86; B01J023-22; B01J023-24; B01J023-28; B01J023-30;  
B01J023-34; B01J023-40; B01J023-648; B01J023-70; B01J023-847

CC 59-4 (Air Pollution and Industrial Hygiene)  
Section cross-reference(s): 42, 67

ST porous polymer coating **oxidn** catalyst halogen compd decompn;  
dioxin waste gas **oxidn** catalyst fluoropolymer coating

IT Porous materials  
Porous materials  
(coatings; porous polymer-coated **oxidation** catalyst for decomposition of halogen-containing organic compds. in waste gas)

IT **Oxidation** catalysts  
Waste gases  
(porous polymer-coated **oxidation** catalyst for decomposition of halogen-containing organic compds. in waste gas)

IT Acrylic polymers, processes  
Fluoropolymers, processes  
Polyamides, processes  
Polysiloxanes, processes  
RL: CAT (Catalyst use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(porous polymer-coated **oxidation** catalyst for decomposition of halogen-containing organic compds. in waste gas)

IT Coating materials  
Coating materials

(porous; porous polymer-coated oxidation catalyst for decomposition of halogen-containing organic compds. in waste gas)

IT 108-90-7, Chlorobenzene, processes  
 RL: REM (Removal or disposal); PROC (Process)  
 (decomposition of; porous polymer-coated oxidation catalyst for decomposition of halogen-containing organic compds. in waste gas)

IT 9002-84-0, MDF 30J  
 RL: CAT (Catalyst use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (porous polymer-coated oxidation catalyst for decomposition of halogen-containing organic compds. in waste gas)

IT 1314-23-4, Zirconia, processes 1344-28-1, Alumina, processes  
 7439-88-5, Iridium, processes 7439-89-6, Iron, processes 7439-96-5,  
 Manganese, processes 7440-02-0, Nickel, processes  
 7440-05-3, Palladium, processes 7440-06-4, Platinum,  
 processes 7440-16-6, Rhodium, processes 7440-18-8,  
 Ruthenium, processes 7440-47-3, Chromium, processes 7440-48-4, Cobalt,  
 processes 7440-50-8, Copper, processes 7631-86-9, Silica,  
 processes 7803-55-6, Ammonium metavanadate 11098-84-3, Ammonium molybdate 12028-48-7, Ammonium metatungstate 13463-67-7, Titania,  
 processes  
 RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (porous polymer-coated oxidation catalyst for decomposition of halogen-containing organic compds. in waste gas)

=> d 1158 ibib hitstr abs hitind 2-  
 YOU HAVE REQUESTED DATA FROM FILE 'HCAPLUS' - CONTINUE? (Y)/(N):y

YOU HAVE REQUESTED DATA FROM 7 ANSWERS - CONTINUE? Y/(N):y

L158 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 2000:322826 HCAPLUS  
 DOCUMENT NUMBER: 133:9575  
 TITLE: Effect of quantity of polymer on catalysis and superstructure size of polymer-protected Pt nanoclusters  
 AUTHOR(S): Shiraishi, Y.; Nakayama, M.; Takagi, E.; Tominaga, T.; Toshima, N.  
 CORPORATE SOURCE: Department of Materials Science and Engineering, Science University of Tokyo in Yamaguchi, Onoda-shi, Yamaguchi, 756-0884, Japan  
 SOURCE: Inorganica Chimica Acta (2000), 300-302, 964-969  
 CODEN: ICHAA3; ISSN: 0020-1693  
 PUBLISHER: Elsevier Science S.A.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-06-4, Platinum, uses  
 RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
 (effect of quantity of polymer on catalysis and superstructure size of polymer-protected Pt nanoclusters)  
 RN 7440-06-4 HCAPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

AB Platinum nanoclusters protected by poly(N-vinyl-2-pyrrolidone) (PVP) were prepared by ethanol **reduction** of hexachloroplatinic(IV) acid in the presence of PVP. The PVP-protected platinum nanoclusters, prepared at various mole ratios of PVP to platinum, were characterized by transmission electron microscopy (TEM), atomic force microscopy and the Taylor dispersion method. Hydrogenation of Me acrylate in ethanol under 1 atm of hydrogen at 30°C was used for evaluation of the catalytic activities, revealing that the catalytic activity of platinum nanoclusters depends on the superstructure size of the PVP-protected nanoclusters in dispersion, which can be estimated on the basis of measurements by TEM and the Taylor dispersion method.

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
Section cross-reference(s): 23, 38

IT 7440-06-4, Platinum, uses 9003-39-8, Poly(N-vinyl-2-pyrrolidone)

143348-84-9, uses

RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
(effect of quantity of polymer on catalysis and superstructure size of  
**polymer-protected** Pt nanoclusters)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L158 ANSWER 3 OF 8 HCPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1999:87131 HCPLUS

DOCUMENT NUMBER: 130:214122

TITLE: Preparation of polymer-stabilized **noble metal** colloids

AUTHOR(S): Yu, Weiyong; Liu, Manhong; Liu, Hanfan; Zheng, Jingming

CORPORATE SOURCE: Polymer Chemistry Laboratory, Institute of Chemistry, Chinese Academy of Sciences, Chinese Academy of Sciences and China Petro-Chemical Corporation, Beijing, 100080, Peop. Rep. China

SOURCE: Journal of Colloid and Interface Science (1999), 210(1), 218-221

CODEN: JCISA5; ISSN: 0021-9797

PUBLISHER: Academic Press

DOCUMENT TYPE: Journal

LANGUAGE: English

IT 7440-05-3P, Palladium, uses 7440-06-4P, Platinum, uses

RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)  
(preparation of **polymer-stabilized** noble metal colloids)

RN 7440-05-3 HCPLUS

CN Palladium (8CI, 9CI) (CA INDEX NAME)

Pd

RN 7440-06-4 HCPLUS

CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

AB A series of polymer-stabilized platinum and palladium colloids were prepared via methanol **reduction** for the investigation of the preparation

conditions. Through TEM observation and catalytic hydrogenation of olefins, it was found that adding a suitable amount of NaOH was good for small-sized colloidal particles and higher catalytic hydrogenation activity. (c) 1999 Academic Press.

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 38, 66  
 IT 7440-05-3P, Palladium, uses 7440-06-4P, Platinum, uses  
 RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)  
 (preparation of **polymer-stabilized** noble metal colloids)  
 REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L158 ANSWER 4 OF 8 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1998:225313 HCPLUS  
 DOCUMENT NUMBER: 128:282635  
 TITLE: Asymmetric hydrogenation of /  
 α-ketoesters over finely dispersed /  
 polymer-stabilized platinum clusters  
 AUTHOR(S): Zuo, Xiaobin; Liu, Hanfan; Liu, Manhong  
 CORPORATE SOURCE: Polymer Chemistry Laboratory, Chinese Academy of Sciences and China Petro-Chemical Corporation, Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Japan  
 SOURCE: Tetrahedron Letters (1998), 39(14), 1941-1944  
 CODEN: TELEAY; ISSN: 0040-4039  
 PUBLISHER: Elsevier Science Ltd.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 128:282635  
 IT 7440-06-4, Platinum, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (asym. hydrogenation of α-keto esters over finely dispersed **polymer-stabilized** platinum clusters modified with cinchonidine)  
 RN 7440-06-4 HCPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

AB Finely dispersed polyvinylpyrrolidone-stabilized platinum clusters (PVP-Pt) modified with cinchonidine catalyze the asym. hydrogenation of α-ketoesters, giving enantiomeric excesses in favor of R-(+)-Me lactate up to 97.6%. The reaction is demonstrated to be structure insensitive and runs best over a tiny cluster with a mean size of 1.4 nm, which is quite different from conventional supported catalysts.  
 CC 23-17 (Aliphatic Compounds)  
 ST asym hydrogenation keto ester; polymer stabilized platinum cluster hydrogenation catalyst  
 IT Hydrogenation  
 Hydrogenation catalysts  
 Solid phase synthesis  
 (asym. hydrogenation of α-keto esters over finely dispersed polymer-stabilized platinum clusters modified with cinchonidine)

- IT Esters, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
     (keto; asym. **hydrogenation** of  $\alpha$ -keto esters over finely dispersed polymer-stabilized platinum clusters modified with cinchonidine)
- IT 485-71-2, Cinchonidine 7440-06-4, Platinum, uses  
 RL: CAT (Catalyst use); USES (Uses)  
     (asym. **hydrogenation** of  $\alpha$ -keto esters over finely dispersed polymer-stabilized platinum clusters modified with cinchonidine)
- IT 600-22-6, Methyl pyruvate 617-35-6, Ethyl pyruvate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
     (asym. **hydrogenation** of  $\alpha$ -keto esters over finely dispersed polymer-stabilized platinum clusters modified with cinchonidine)
- IT 7699-00-5P, R-Ethyl lactate 17392-83-5P, R-(+)-Methyl lactate  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
     (asym. **hydrogenation** of  $\alpha$ -keto esters over finely dispersed polymer-stabilized platinum clusters modified with cinchonidine)

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- L158 ANSWER 5 OF 8 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1997:32473 HCPLUS  
 DOCUMENT NUMBER: 126:95309  
 TITLE: Preparation and characterization of polymer-stabilized rhodium particles  
 AUTHOR(S): Busser, G. W.; van Ommen, J. G.; Lercher, J. A.  
 CORPORATE SOURCE: Faculty Chemical Technology, University Twente, AE Enschede, 7500, Neth.  
 SOURCE: Advanced Catalysts and Nanostructured Materials (1996), 213-230. Editor(s): Moser, William R.  
 Academic: San Diego, Calif.  
 CODEN: 63URAA  
 DOCUMENT TYPE: Conference  
 LANGUAGE: English  
 IT 7440-16-6, Rhodium, uses  
 RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
     (preparation and characterization of polymer-stabilized rhodium particles)  
 RN 7440-16-6 HCPLUS  
 CN Rhodium (8CI, 9CI) (CA INDEX NAME)

Rh

- AB Methods for the preparation of small polyvinyl-2-pyrrolidone stabilized metal particles well defined in size and size distribution have been developed. The metal particle size is governed by the interaction of the polymer with the catalyst precursor and the **reduction** rate. in various **reducing** agents. Stronger interaction of the metal salt precursor with the polymer and higher **reduction** rates result in smaller particle sizes on the final catalyst. The relationship between the average particle size and the catalytic properties for cyclohexene hydrogenation is discussed.
- CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 22, 24, 38
- IT Nanoparticles

## Particle size distribution

## Reduction

(preparation and characterization of polymer-stabilized rhodium particles)

IT 7440-16-6, Rhodium, uses 9003-39-8

RL: CAT (Catalyst use); PRP (Properties); USES (Uses)

(preparation and characterization of polymer-stabilized rhodium particles)

L158 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1996:608745 HCAPLUS

DOCUMENT NUMBER: 125:287216

TITLE: Preparation of a new catalytic polymer-coated electrode using highly palladium metal-incorporated poly[N-(6-aminoethyl)pyrrole]

AUTHOR(S): Takano, Nobuhiro; Abe, Kunihiko; Takeno, Noboru

CORPORATE SOURCE: Dep. Applied Chem., Muroran Inst. Technol., Muroran, 050, Japan

SOURCE: Denki Kagaku oyobi Kogyo Butsuri Kagaku (1996), 64(10), 1118-1120

CODEN: DKOKAZ; ISSN: 0366-9297

PUBLISHER: Denki Kagaku Kyokai

DOCUMENT TYPE: Journal

LANGUAGE: English

IT 7440-05-3, Palladium, uses

RL: CAT (Catalyst use); PRP (Properties); USES (Uses)

(preparation and electropolymer. of aminoethylpyrrole for new catalytic polymer-coated palladium-incorporated electrode)

RN 7440-05-3 HCAPLUS

CN Palladium (8CI, 9CI) (CA INDEX NAME)

Pd

AB The preparation is reported of a conductive polymer, i.e. poly-[N-(6-aminoethyl)pyrrole] (I), film electrode which incorporates Pd metal for electrocatalytic hydrogenation. The monomer [N-(6-aminoethyl)pyrrole] (II) was synthesized by the Pd-catalyzed cyclization of 2-butene-1,4-diol with 1,6-hexamethylenediamine. The film of I was then formed by electropolymer. of II on a glassy C electrode, followed by electrolytic incorporation of the metal and evaluation of the resulting film.

CC 72-2 (Electrochemistry)

Section cross-reference(s): 67

ST catalytic polymer coated glassy carbon electrode; hydrogenation catalyst polyaminoethylpyrrole palladium polymer electrode

IT Hydrogenation catalysts

(electrochem., preparation and electropolymer. of aminoethylpyrrole for new catalytic polymer-coated palladium-incorporated electrode for hydrogenation)

IT 7440-05-3, Palladium, uses

RL: CAT (Catalyst use); PRP (Properties); USES (Uses)

(preparation and electropolymer. of aminoethylpyrrole for new catalytic polymer-coated palladium-incorporated electrode)

L158 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1996:198406 HCAPLUS

DOCUMENT NUMBER: 124:316160

TITLE: Polymer-protected platinum catalysts in the nanometer

AUTHOR(S) : size range  
 CORPORATE SOURCE : Mayer, Andrea B. R.; Mark, James E.  
 Dep. Chem. Polymer Res. Cent., Univ. Cincinnati,  
 Cincinnati, OH, 45221-0172, USA  
 SOURCE : ACS Symposium Series (1996),  
 622 (Nanotechnology), 137-50  
 CODEN: ACSMC8; ISSN: 0097-6156  
 PUBLISHER : American Chemical Society  
 DOCUMENT TYPE : Journal; General Review  
 LANGUAGE : English  
 IT 7440-06-4, Platinum, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (preparation and use of polymer-protected platinum  
 colloids)  
 RN 7440-06-4 HCPLUS  
 CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

AB A review with 8 refs. Stable platinum colloids were prepared by  
 reducing dihydrogen hexachloroplatinate H<sub>2</sub>PtCl<sub>6</sub> in the presence of  
 protective polymers. In this chapter, we report the results for several  
 nonionic polymers and cationic polyelectrolytes and their ability to  
 stabilize such platinum colloids. The sizes of the platinum particles  
 were investigated by transmission electron microscopy (TEM) and found to  
 be in the nanometer size range. The catalytic activity of these systems  
 was tested by the hydrogenation of cyclohexene, cis-cyclooctene,  
 and 1-hexene. A variety of polymer-protected platinum nanoparticles  
 showed catalytic activity, and conversions of 100% were obtained in most  
 cases.  
 CC 21-0 (General Organic Chemistry)  
 Section cross-reference(s) : 67  
 ST polymer protected platinum catalyst review;  
 hydrogenation catalyst platinum colloid review  
 IT Hydrogenation catalysts  
 (polymer-protected platinum colloids)  
 IT 7440-06-4, Platinum, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (preparation and use of polymer-protected platinum  
 colloids)

L158 ANSWER 8 OF 8 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1995:988691 HCPLUS  
 DOCUMENT NUMBER: 124:157118  
 TITLE: Catalysts derived from polymer-stabilized colloidal  
 platinum: Effects of support and calcination on the  
 catalytic behavior in hydrogenation  
 AUTHOR(S) : Duff, D. G.; Mallat, T.; Schneider, M.; Baiker, A.  
 CORPORATE SOURCE: Department of Chemical Engineering and Industrial  
 Chemistry, Swiss Federal Institute of Technology,  
 ETH-Zentrum, Zurich, CH-8092, Switz.  
 SOURCE: Applied Catalysis, A: General (1995),  
 133(1), 133-48  
 CODEN: ACAGE4; ISSN: 0926-860X  
 PUBLISHER: Elsevier  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 7440-06-4, Platinum, uses

23

Krishnan 09/936,891

08/31/2004

RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
(catalysts derived from polymer-stabilized  
colloidal platinum and effects of support and calcination on catalytic  
behavior in hydrogenation)

RN 7440-06-4 HCPLUS

CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

AB Platinum colloids prepared by reduction of H<sub>2</sub>PtCl<sub>6</sub> with methanol in the presence of polyvinylpyrrolidone have been examined in the sol state and following immobilization on oxide supports. Both the sol and the supported catalysts contained platinum metal particles of 3-4 nm number-mean diameter, as determined by TEM. High initial activities for hydrogenation of the medium-sized alkenes trans-stilbene and methylcinnamate were recorded. The platinum particles were compared for particle size distribution and catalytic activity in the unsupported (sol) state and in supported states, both before and after heat treatment in oxygen-argon at 300°C (calcination). Highest activities were measured for the sol state and for the calcined supported catalysts. It is suggested that this behavior is related to the influence of support and polymer on the accessibility of the metal surface for the reactants. Marked activity differences between a platinum-colloid catalyst immobilized on a titania aerogel and a binary Pt-titania aerogel, directly prepared by a one-step sol-gel route with ensuing supercrit. drying, are discussed.

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
Section cross-reference(s): 38, 66

ST platinum polyvinylpyrrolidone catalyst hydrogenation stilbene;  
methylcinnamate hydrogenation platinum  
polyvinylpyrrolidone catalyst; support platinum catalyst  
hydrogenation; calcination platinum catalyst hydrogenation

IT Calcination

Hydrogenation catalysts

(catalysts derived from polymer-stabilized colloidal platinum and  
effects of support and calcination on catalytic behavior in  
hydrogenation)

IT Particle size

(catalysts derived from polymer-stabilized colloidal platinum and  
effects of support and calcination on catalytic behavior in  
hydrogenation in relation to)

IT 7440-06-4, Platinum, uses 9003-39-8, Polyvinylpyrrolidone

RL: CAT (Catalyst use); PRP (Properties); USES (Uses)

(catalysts derived from polymer-stabilized  
colloidal platinum and effects of support and calcination on catalytic  
behavior in hydrogenation)

IT 103-26-4, Methylcinnamate 103-30-0, trans-Stilbene

RL: RCT (Reactant); RACT (Reactant or reagent)

(catalysts derived from polymer-stabilized colloidal platinum and  
effects of support and calcination on catalytic behavior in  
hydrogenation)

=> d iall abeq tech abex 1106

YOU HAVE REQUESTED DATA FROM FILE 'WPIX' - CONTINUE? (Y)/N:y

L106 ANSWER 1 OF 7 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

ACCESSION NUMBER: 2001-017254 [03] WPIX  
 DOC. NO. CPI: C2001-004958  
 TITLE: Reactive membrane used for the hydrogenation of unsaturated compounds, e.g. cyclohexene to cyclohexane, comprises a catalyst-loaded support with a pore structure of crosslinked nano-particles of organic polymer.  
 DERWENT CLASS: A18 A97 E19 J04  
 INVENTOR(S): BEYER, A; MAEHR, U; REICHERT, K H; SCHOMAECKER, R  
 PATENT ASSIGNEE(S): (REIC-I) REICHERT K; (SCHO-I) SCHOMAECKER R  
 COUNTRY COUNT: 1  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
DE 19918486	A1	20001026	(200103)*		5	B01J031-06<--	

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 19918486	A1	DE 1999-1018486	19990423

PRIORITY APPLN. INFO: DE 1999-19918486 19990423

## INT. PATENT CLASSIF.:

MAIN: B01J031-06

SECONDARY: C07B035-02; C07C005-03

## BASIC ABSTRACT:

DE 19918486 A UPAB: 20010116

NOVELTY - Reactive membrane containing a catalyst-loaded support with a pore structure formed of crosslinked nano-particles of an organic polymer (A).

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a process for the production of reactive membranes by:

(a) precipitation polymerization of a dispersion of a functional group-containing vinyl monomer in a solvent in presence of a stabilizer to give a dispersion of nano-particles with a low polydispersity,

(b) addition of a polyfunctional crosslinker (B) and possibly a catalyst-containing solution,

(c) heating at the crosslinking temperature in a closed mould to form a gel,

(d) demolding the gel carrier with the gel on it and adding a catalyst-containing solution (if not added in stage b), and

(e) removing solvent to give a porous, catalyst-containing membrane.

USE - For the hydrogenation of unsaturated compounds with elemental hydrogen, by passing the gaseous compound, especially cyclohexene, with hydrogen through the membrane at temperatures up to 65 deg. C (claimed). Also suitable for the selective partial hydrogenation of polyunsaturated compounds, e.g. benzene to cyclohexene.

ADVANTAGE - Reactive membranes made by a single method but with a pore structure (and therefore material transport properties) which can be varied over a wide range, enabling a wide range of applications. These membranes show a high catalytic activity, e.g. enabling 99% conversion of cyclohexene to cyclohexane at room temperature with a hydrogen flow rate of 100 ml/minute.

Dwg.0/0

FILE SEGMENT: CPI

FIELD AVAILABILITY: AB; DCN

MANUAL CODES: CPI: A04-F04; A12-W11K; E10-J02A1; J04-E04B;  
**N02-F02**

TECH

UPTX: 20010116

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Catalyst:  
Finely-divided precious metals, preferably palladium.

TECHNOLOGY FOCUS - POLYMERS - Preferred Components: Polymer (A) is a vinyl polymer with functional groups, especially carboxyl groups, which are crosslinked in the nano-particles by addition or condensation reactions with crosslinkers (B). Preferred nano-particles contain poly(meth)acrylic acid, crosslinked with diepoxides, especially aliphatic alpha.omega-diepoxides. The nano-particles have an average particle size of 20-300 nm and contain a stabilizer, preferably a block copolymer with vinyl groups and oxyalkylene groups. The gel carrier consists of filter paper.

Preferred Composition: The membrane contains nano-particles and 15-60 mol% crosslinker (B) (based on vinyl monomer + B), and the pores show an average radius of 200-1000 nm, decreasing with increasing amounts of (B). The catalyst content is 2-5 wt% based on polymer plus stabilizer in the nano-particles.

Preferred Process: The starting dispersion with a vinyl monomer content of 25-100 g/l and a monomer:stabilizer wt. ratio of (3:1)-(100:1) is radically polymerized to nano-particles (20-300 nm). A co-stabilizer (preferably water and/or alkanediol) may also be added in a wt. ratio of (co-stabilizer):(vinyl monomer) = (1:50)-(1:1). The high-boiling solvent in the gel on the carrier is replaced by a solvent with a melting point above -10 degreesC and a boiling point below +110 degreesC, preferably cyclohexane, which is then removed by freeze-drying the gel. Precious metal compounds added to the dispersion are reduced to the metal during crosslinking; compounds added to the gel are reduced to metal by passing hydrogen through the membrane. The amount of metal compound added is that required to give a reduced metal content of 2-5 wt% in the membrane.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Solvents:

Aliphatic-aromatic hydrocarbons or benzene, preferably trimethylbenzene.

ABEX

UPTX: 20010116

EXAMPLE - A mixture of 438 g 1,2,4-trimethylbenzene, (TMB) 8.5 g Tensid SE 3010 (RTM: stabilizer) and 50 g acrylic acid was heated to 50 degreesC and polymerized by the addition of a solution of 0.15 g 2,2-azobis-(2,4-dimethylvaleronitrile) in 3 ml TMB, to give a dispersion of nano-particles with an average particle size of 115 nm and a polydispersity of 16%. A mixture of 10 ml polymer dispersion and 1.37 g Araldite DYH/BD (RTM: 1,6-hexanediol diglycidyl ether) was filled into a circular mould containing a 70-mm round filter paper as gel carrier, then the mould was closed and heated for 24 hours at 90 degreesC. The carrier with the resulting crosslinked gel (total thickness = 3 mm) was freed from TMB by immersion in 80 ml THF for 12 hours, after which the cloudy membrane obtained was immersed for 12 hours in a solution of 115 mg palladium acetate in 30 ml THF. This gave an orange membrane (Pd content 5 wt%) which was washed for 3 x 4 hours in cyclohexane (3 x 80 ml) to remove the THF and then freeze dried at -25 degreesC and 0.070 bar. The membrane obtained showed an average pore radius of 420 nm and a hydrogen permeability of 2 x 10 power-14 m<sup>2</sup> (sic). The Pd acetate was reduced to Pd by passing hydrogen through the membrane for 12 hours at 65 degreesC. Hydrogenation tests with the reduced membrane (12 hours with hydrogen and cyclohexene at 100 ml/min) gave a product containing 99 vol% cyclohexane and 1 vol% cyclohexene.

=> d iall abeq tech abex 1106 2-  
YOU HAVE REQUESTED DATA FROM FILE 'WPIX' - CONTINUE? (Y)/N:y

YOU HAVE REQUESTED DATA FROM 6 ANSWERS - CONTINUE? Y/(N):y

L106 ANSWER 2 OF 7 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN  
 ACCESSION NUMBER: 2000-611513 [58] WPIX  
 DOC. NO. CPI: C2000-182977  
 TITLE: Avoiding catalyst deactivation in industrial conversion  
 of carbohydrates, alcohols, aldehydes or polyhydroxy  
 compounds in the aqueous phase by using a metal catalyst  
 formed of polymer-stab:  
 nanoparticles.  
 DERWENT CLASS: D17 E13 E17  
 INVENTOR(S): CAPAN, E; HAEHNLEIN, M  
 VORLOP, K; BEGLI, A H;  
 PATENT ASSIGNEE(S): (SUED-N) SUEDZUCKER AG  
 SUEDZUCKER AG  
 COUNTRY COUNT: 23  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2000055165	A1	20000921	(200058)*	GE	45	C07H015-00
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE						
W: AU CA IL US						
DE 19911504	A1	20001019	(200060)			C07B033-00
AU 2000043953	A	20001004	(200101)			C07H015-00
EP 1165580	A1	20020102	(200209)	GE		C07H015-00
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE						
AU 747812	B	20020523	(200245)			C07H015-00
EP 1165580	B1	20030702	(200345)	GE		C07H015-00
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE						
US 2003139594	A1	20030724	(200352)			C07H005-04
DE 50002730	G	20030807	(200359)			C07H015-00
US 2004002597	A1	20040101	(200402)			C07H005-06
ES 2202115	T3	20040401	(200425)			C07H015-00

*Applicants*

SE, U;  
 I  
 IED-N)

#### APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2000055165	A1	WO 2000-EP2351	20000316
DE 19911504	A1	DE 1999-1011504	19990316
AU 2000043953	A	AU 2000-43953	20000316
EP 1165580	A1	EP 2000-925117	20000316
		WO 2000-EP2351	20000316
AU 747812	B	AU 2000-43953	20000316
EP 1165580	B1	EP 2000-925117	20000316
		WO 2000-EP2351	20000316
US 2003139594	A1 Div ex	US 2001-936891	20011019
		US 2003-340913	20030110
DE 50002730	G	DE 2000-00002730	20000316
		EP 2000-925117	20000316
		WO 2000-EP2351	20000316
US 2004002597	A1 Div ex	US 2001-936891	20011019
		US 2003-340901	20030110
ES 2202115	T3	EP 2000-925117	20000316

#### FILING DETAILS:

PATENT NO	KIND	PATENT NO
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AU 2000043953	A Based on	WO 2000055165
EP 1165580	A1 Based on	WO 2000055165
AU 747812	B Previous Publ.	AU 2000043953
	Based on	WO 2000055165
EP 1165580	B1 Based on	WO 2000055165
DE 50002730	G Based on	EP 1165580
	Based on	WO 2000055165
ES 2202115	T3 Based on	EP 1165580

PRIORITY APPLN. INFO: DE 1999-19911504 19990316

INT. PATENT CLASSIF.:

MAIN:	C07B033-00; C07H005-04; C07H005-06; C07H015-00
SECONDARY:	B01J031-06; C07B041-00; C07C002-00; C07C029-14;
	C07C029-141; C07C051-23; C07C051-235; C07C059-10;
	C07C059-185; C07C059-245; C07D307-62; C07H001-00

BASIC ABSTRACT:

WO 200055165 A UPAB: 20001114

NOVELTY - Industrial conversion of carbohydrates, alcohols, aldehydes or polyhydroxy compounds in the aqueous phase is effected using a metal catalyst formed from polymer-stabilized nanoparticles.

USE - No uses are given for the products of the wide range of oxidation, hydrogenation or reductive aminations that can be effected, except for the 2-keto-L-gulonic acid obtained by oxidation of sorbose which serves as an intermediate for the production of ascorbic acid (Vitamin C).

ADVANTAGE - The catalyst deactivation associated with prior-art industrial processes is avoided as long as the stabilizing interaction between the polymer and the nanoparticles is maintained; this is achieved despite the use of a variety of different combinations of supports, polymers and metals. There is no need to use a promoter with noble metal catalysts and, further, the catalysts are effective in terms of high reaction rate and high selectivity even with conversions of large molecules such as di- or oligo-saccharides.

Dwg.0/7

FILE SEGMENT: CPI

FIELD AVAILABILITY: AB; DCN

MANUAL CODES: CPI: D06-G; E07-A02; E10-A07; N02; N05-D; N05-E

TECH UPTX: 20001114

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Process: The conversion is (i) an oxidation, especially of glucose, fructose, sorbose, saccharose and/or isomaltulose; (ii) a hydrogenation, especially a reducing sugar such as glucose, fructose, xylose, sorbose, isomaltose, isomaltulose, trehalose, maltose and/or lactose; and/or (iii) a reductive amination, especially of the reducing sugars listed in (ii) above. The catalyst is added continuously or at appropriate intervals to the aqueous phase and oxidation products are continuously removed by electrodialysis (e.g. as per EP651734) from the reaction system and then recovered.

Preferred Catalyst : The metal can be a noble metal such as Pt, Pd, Rh and/or Ru or a non-noble metal such as Cu and/or Ni. The catalyst can consist of one or two metals and can contain a promoter metal. It can be in a membrane arrangement or can be immobilized on a carrier, especially in a gel.

TECHNOLOGY FOCUS - POLYMERS - Preferred Polymer: A wide range of homo- and co-polymers can be used to encapsulate the nanoparticles, among those disclosed being polyvinylpyrrolidones, PVA, poly-(2-Et-2-oxazoline), polymethacrylic acid, poly-(styrenesulfonic acid), poly-(vinyl phosphonic acid) and polydiallyldimethylammonium chloride.

ABEX UPTX: 20001114

EXAMPLE - An Al<sub>2</sub>O<sub>3</sub>-supported catalyst which could be used in 10 sorbose

oxidation runs, each of 24 hours duration, without any substantial deactivation (i.e. retaining more than 80 % of its activity, as opposed to a reduction to below 20-30 % of its original activity in the case of using a conventional Al<sub>2</sub>O<sub>3</sub>-supported Pt catalyst) was obtained by:

(i) adding H<sub>2</sub>PtCl<sub>6</sub>.6H<sub>2</sub>O (398.2 mg) and NaOH (291.6 mg) to solution of completely-dissolved polyvinylpyrrolidone (3.27 g) in MeOH (33 ml) and refluxing so that the mixture turns yellow;

(ii) after a further 60 minutes reflux, cooling the brown-black sol thus obtained, removing unreacted alcohol dialytically and pumping the colloidal sol countercurrent to deionized water in a hollow fibre dialysis module; and

(iii) adding the Pt-containing colloidal solution (50 mg) to Al<sub>2</sub>O<sub>2</sub> highly porous particles (4.69 g), followed by adding formic acid (1.15 ml), stirring overnight, filtering and then washing with first MeOH and then distilled water prior to drying. Each 24 hour oxidation run was effected using degassed and activated catalyst suspension (150 ml) and sorbose (7.5 g) added under N<sub>2</sub>, with the reaction mixture heated to 50 degreesC, adjusted to pH 7.3 and saturated (ca. 95 %) with O<sub>2</sub>.

L106 ANSWER 3 OF 7 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

ACCESSION NUMBER: 1998-596703 [51] WPIX

DOC. NO. CPI: C1998-179181

TITLE: Palladium containing nano-particle sol optionally containing Group-Ib and Group-VIIB metals - is stabilised by betaine group containing **polymeric protective colloid** and is useful as a catalyst for the production of vinyl acetate.

DERWENT CLASS: A13 A14 A41 E17

INVENTOR(S): DINGERDISSEN, U; HAGEMEYER, A; KUEHLEIN, K; MANZ, A; MILLAUER, H

PATENT ASSIGNEE(S): (FARH) HOECHST RES & TECHNOLOGY DEUT GMBH & CO; (FARH) HOECHST AG; (CELA) CELANESE CHEM EURO GMBH; (CELA) CELANESE GMBH

COUNTRY COUNT: 28

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
<hr/>						
EP 879642	A2	19981125 (199851)*	GE	13	B01J023-44	
R: AL AT BE	CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT					
RO SE SI						
DE 19721601	A1	19981126 (199902)			B01J023-44	
JP 10328571	A	19981215 (199909)		12	B01J031-28	
CA 2238253	A	19981123 (199919)			B22F009-24	
US 6074979	A	20000613 (200035)			B01J031-00	
EP 879642	B1	20010822 (200149)	GE		B01J023-44	
R: DE ES FR GB						
DE 59801238	G	20010927 (200156)			B01J023-44	
ES 2162690	T3	20020101 (200221)			B01J023-44	

#### APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
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EP 879642	A2	EP 1998-108576	19980512
DE 19721601	A1	DE 1997-1021601	19970523
JP 10328571	A	JP 1998-142885	19980525
CA 2238253	A	CA 1998-2238253	19980522
US 6074979	A	US 1998-83008	19980521
EP 879642	B1	EP 1998-108576	19980512

DE 59801238	G	DE 1998-501238	19980512
		EP 1998-108576	19980512
ES 2162690	T3	EP 1998-108576	19980512

**FILING DETAILS:**

PATENT NO	KIND	PATENT NO
DE 59801238	G Based on	EP 879642
ES 2162690	T3 Based on	EP 879642

PRIORITY APPLN. INFO: DE 1997-19721601 19970523

**INT. PATENT CLASSIF.:**

MAIN:	B01J023-44; B01J031-00; B01J031-28; B22F009-24
SECONDARY:	B01J013-00; B01J013-02; B01J023-40; B01J023-52;
	B01J023-58; B01J031-06; B01J037-16; C07B061-00;
	C07C067-05; C07C069-15; C07C229-00

**BASIC ABSTRACT:**

EP 879642 A UPAB: 19981223

Soluble nanoparticles (I) that contain palladium optionally with Group Ib and VIIIB metals are embedded in a protective colloid that contains a polymer having betaine groups.

Also claimed are: (i) a process for the production of (I) by reaction of a palladium compound, optionally with Group Ib and VIIIB metal compounds with a reducing agent in water or a solvent whereby the reduction is carried out in the presence of a protective colloid that contains a polymer, the side chains of which contain betaine groups or the protective colloid is converted to the resulting sol after the reduction step; (ii) the resulting sol whereby the electrolyte contains chloride, bromide or iodide; and (iii) a catalyst for the production of vinyl acetate whereby a sol of the nanoparticles (I) is applied to a catalyst support by dipping, spraying, immersion, impregnation, spray drying or spin coating.

USE - The nanoparticles (I) are useful as a catalyst for the production of vinyl acetate.

ADVANTAGE - The nanoparticles (I) have improved stability.

Dwg.0/0

FILE SEGMENT: CPI

FIELD AVAILABILITY: AB; DCN

MANUAL CODES: CPI: A01-D10; A12-W11K; E10-G02D; N01-A; N02-F

L106 ANSWER 4 OF 7 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

ACCESSION NUMBER: 1989-300371 [41] WPIX

TITLE: Transition metal organo sols stabilised by organo metallic polymers - prepared by condensing transition metal vapour into solution of poly isobutyl aluminoxane in an organic liquid.

DERWENT CLASS: A97 J04 M25

INVENTOR(S): BRADLEY, J S; HILL, E W

PATENT ASSIGNEE(S): (ESSO) EXXON RES & ENG CO

COUNTRY COUNT: 9

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 4857492	A	19890815 (198941)*		5		
EP 336629	A	19891011 (198941)		EN		
R: DE GB NL						
AU 8931677	A	19890928 (198947)				
NO 8901059	A	19891023 (198948)				

JP 01299638	A 19891204 (199003)		
EP 336629	B1 19920603 (199223)	EN	6 B01J031-06<--
R: DE GB NL			
DE 68901674	E 19920709 (199229)		B01J031-06<--
NO 173640	B 19931004 (199345)		B01J000-00
CA 1334453	C 19950214 (199514)		B01J013-00

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 4857492	A	US 1988-174135	19880328
EP 336629	A	EP 1989-303062	19890328
JP 01299638	A	JP 1989-76358	19890328
EP 336629	B1	EP 1989-303062	19890328
DE 68901674	E	DE 1989-601674	19890328
		EP 1989-303062	19890328
NO 173640	B	NO 1989-1059	19890313
CA 1334453	C	CA 1989-593098	19890308

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 68901674	E Based on	EP 336629
NO 173640	B Previous Publ.	NO 8901059

PRIORITY APPLN. INFO: US 1988-174135 19880328

REFERENCE PATENTS: EP 54832; FR 219911; US 4252678; US 4292253; US 4332698;  
EP 219911

## INT. PATENT CLASSIF.:

MAIN: B01J031-06  
 SECONDARY: B01F017-52; B01J013-00; B01J031-12; B01J035-12;  
 C01G007-00; C08G079-00; C08J003-08; C08L085-00

## BASIC ABSTRACT:

US 4857492 A UPAB: 19930923

Preparation of a polymer stabilised colloidal metal (M) solution wherein said metal, M' is a transition metal and said polymer is an organometallic polymer having the monomer unit of formula Rx'O, where R is alkyl, cycloalkyl, or alkoxy, M' is any metal satisfying the formula and x is 2 less than the valence of M' and wherein said polymer is soluble in an inert liquid, interacts with said colloidal parts of M in said liquid, and able to react with H<sub>2</sub>O to produce the oxide of M', M'2O<sub>z</sub> or its hydrate M'2O<sub>z</sub>-nH<sub>2</sub>O, where Z is the valence of M' and n is the number of mols. of H<sub>2</sub>O.

1) Transition metal is opt. Pd, Pt, Cu, Ni, Co or Cr, 2) is Al, 3) R is isobutyl, 4) liquid is an organic liquid

USES - Prepared solution includes small metal clusters which may be used directly as a catalyst or to produce discrete metal clusters in a solid matrix which is also used as a catalyst.

0/1

FILE SEGMENT: CPI

FIELD AVAILABILITY: AB

MANUAL CODES: CPI: A06-D; A12-W11K; J04-E04; M25-J; N01-C;  
 N02-B01; N02-C01; N02-D01  
 ; N02-F02; N03-D

ABEQ DE 68901674 E UPAB: 19930923

Prepn. of a polymer stabilised colloidal metal (M) soln. wherein said metal, M' is a transition metal and said polymer is an organometallic polymer having the monomer unit of formula Rx'O, where R is alkyl, cycloalkyl, or alkoxy, M' is any metal satisfying the formula and x

is 2 less than the valence of M' and wherein said polymer is sol. in an inert liq., interacts with said colloidal parts of M in said liq., and able to react with H<sub>2</sub>O to produce the oxide of M', M'2O<sub>x</sub> or its hydrate M'2O<sub>x</sub>-nH<sub>2</sub>O, where Z is the valence of M' and n is the no. of mols. of H<sub>2</sub>O.

1) Transition metal is opt. Pd, Pt, Cu, Ni, Co or Cr, 2) is Al, 3) R is isobutyl, 4) liq. is an organic liq.

USES - Prep'd. soln. includes small metal clusters which may be used directly as a catalyst or to produce discrete metal clusters in a solid matrix which is also used as a catalyst.

ABEQ EP 336629 B UPAB: 19930923

A polymer-stabilised colloidal metal (M) solution wherein the metal M is a transition metal and the polymer is a metal-contg. organic polymer having the repeat unit (RxM'<sub>x</sub>O) where R is an alkyl, cycloalkyl or alkoxy group, M' is a metal satisfying the formula, and x is 2 less than the valence of M', the polymer being a substance that is soluble in an inert liquid, and interacts with the colloidal particles of M so as to solubilise the particles of M in the liquid.

L106 ANSWER 5 OF 7 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

ACCESSION NUMBER: 1988-221628 [32] WPIX

DOC. NO. CPI: C1988-098878

TITLE: Carbonylation of methanol to acetic acid in presence of rhodium and iodide improved by using rhodium supported on pyridine-containing polymer.

DERWENT CLASS: A14 A97 E17

INVENTOR(S): GOE, G L; MARSTON, C R

PATENT ASSIGNEE(S): (REIL) REILLY TAR & CHEM CORP; (REIL) REILLY IND INC

COUNTRY COUNT: 14

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
<hr/>						
EP 277824	A	19880810	(198832)*	EN	10	
R: BE CH DE	FR GB IT LI NL					
BR 8800468	A	19880920	(198842)			
JP 63253047	A	19881020	(198848)			
IL 85320	A	19920818	(199244)			C07C051-12
US 5155261	A	19921013	(199244)		7	C07C045-50
CA 1322193	C	19930914	(199343)			B01J031-18
EP 277824	B1	19940427	(199417)	EN	14	C07C051-12
R: BE CH DE	FR GB IT LI NL					
DE 3889233	G	19940601	(199423)			C07C051-12
JP 07002671	B2	19950118	(199507)		9	C07C053-08
KR 9513076	B1	19951024	(199901)			C07C053-08

#### APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
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EP 277824	A	EP 1988-300904	19880203
JP 63253047	A	JP 1988-25538	19880205
IL 85320	A	IL 1988-85320	19880205
US 5155261	A	US 1987-11286	19870205
	Cont of	US 1988-265321	19881027
	Cont of	US 1989-384072	19890721
	Cont of	US 1990-501356	19900328
	Cont of	US 1990-616699	19901120
		US 1991-787767	19911106
CA 1322193	C	CA 1988-558180	19880204
EP 277824	B1	EP 1988-300904	19880203

DE 3889233	G	DE 1988-3889233	19880203
		EP 1988-300904	19880203
JP 07002671	B2	JP 1988-25538	19880205
KR 9513076	B1	KR 1988-1052	19880205

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 3889233	G Based on	EP 277824
JP 07002671	B2 Based on	JP 63253047

PRIORITY APPLN. INFO: US 1987-11286 19870205  
 REFERENCE PATENTS: A3...8951; No-SR.Pub; SU 1108088; US 3769329; US 4328125;  
 2.Jnl.Ref

## INT. PATENT CLASSIF.:

MAIN: B01J031-18; C07C045-50; C07C051-12; C07C053-08  
 SECONDARY: B01J023-46  
 ADDITIONAL: B01J031-06; C07B061-00; C08F026-06

## BASIC ABSTRACT:

EP 277824 A UPAB: 19930923

A process for carbonylation of methanol to acetic acid at 65-80 bar carbon monoxide pressure, 170-200 deg.C, in the presence of a rhodium species and an iodide promoter (the Monsanto process) is improved by conducting the reaction in the presence of an insol. polymer catalyst having pendant free base, N-oxide and/or quaternised pyridine gps., supporting the rhodium loaded to less than 10 weight% (expressed as metal) of the polymer component.

(I) is porous cross-linked 4- or 2-vinyl pyridine copolymer in the free base or N-oxide form that has been quaternised with an alkyl halide, e.g. methyl iodide and loaded 2 weight% by reaction with a rhodium salt, e.g. rhodium chloride trihydrate; it may simply be formed by adding the polymer to the Monsanto reaction medium which contains methyl iodide and rhodium salt. The polymer may be cross-linked with divinyl benzene.

ADVANTAGE - The improvement provides at least four-fold increase in reaction rate over the Monsanto process using a homogeneous catalyst or prior described heterogeneous catalysts. The polymer is stable, the catalyst readily formed and regenerated in situ, and recycled without loss of activity.

0/0

FILE SEGMENT: CPI

FIELD AVAILABILITY: AB; DCN

MANUAL CODES: CPI: A10-E; A10-E19; A12-W11K; E10-A03; E10-C04J;  
 N02-E; N05-D

ABEQ US 5155261 A UPAB: 19930923

The commercial process for preparing acetic acid, comprises reacting methanol with CO under pressures of 65-80 Bar and at 170-200 deg.C. in the presence of an iodide promoter and a catalyst comprising an insol. polymer (I) having pendant free base, N-oxide or quaternised pyridine gps. supporting a Rh species (II) loaded to under 10 wt. % (expressed as metal) of the polymer component.

Pref. (I) is a copolymer derived from a vinylpyridine, pref. 2- or 4-vinylpyridine, and most pref. (I) is poly(4-vinylpyridine) crosslinked with 25% divinylbenzene contg. 50 wt.% or more of pendant pyridine gps..

Pref (II) is rhodium chloride trihydrate.

USE - Acetic acid is produced from methanol using the catalyst.

0/0

ABEQ EP 277824 B UPAB: 19940613

A process for preparing acetic acid, comprising the step of reacting methanol with carbon monoxide under a pressure of 65-80 Bar and temperature of 170-200 deg.C in the presence of an iodide promoter and a

catalyst comprising an insoluble polymer having pendant free base, N-oxide or quaternised pyridine groups supporting a rhodium species loaded to less than about 10 weight percent (expressed as metal) of the polymer component, the insoluble polymer being stable at a temperature of at least 170 deg.C and at a pressure of at least 65 Bars.

Dwg.0/0

L106 ANSWER 6 OF 7 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN  
 ACCESSION NUMBER: 1983-731186 [32] WPIX  
 DOC. NO. CPI: C1983-075032  
 TITLE: Honeycomb-type catalyst production for removing carbon mon oxide etc. - from exhausts involves coating carrier with water-soluble polymer and immersing in suspension of metal cpd.-activated metal oxide composite.  
 DERWENT CLASS: A81 E19 E36 H06 J01  
 PATENT ASSIGNEE(S): (JAPC) NIPPON SHOKUBAI KAGAKU KOGYO CO LTD  
 COUNTRY COUNT: 3  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 58109140	A	19830629	(198332)*		8	
US 4483940	A	19841120	(198449)			
CA 1194850	A	19851008	(198545)			
JP 62001543	B	19870114	(198705)			

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 58109140	A	JP 1981-206245	19811222
US 4483940	A	US 1982-451475	19821220

PRIORITY APPLN. INFO: JP 1981-186943 19811124; JP  
 1981-206245 19811222

INT. PATENT CLASSIF.: B01J031-06; B01J035-04; B01J037-02

## BASIC ABSTRACT:

JP 58109140 A UPAB: 19930925

The catalyst is obtd. by immersing a honeycomb type carrier in an aqueous solution of a water-soluble organic polymer depositing a catalytic component consisting of noble metal cpd. and/or base metal cpd. on a refractory type activated metal oxide powder to obtain a catalyst composite, dispersing the catalyst composite in water to obtain an aqueous suspension immersing the polymer-coated honeycomb carrier in the suspension, and drying the prod.

The organic polymer is (m)ethyl cellulose, PVA or polyacrylic acid. The noble metal is Pt, Pd, Rh, Ru, or Ir. The base metal is Fe, Co, Ni, Mn, Cr, Mo or Zn. The refractory metal oxide is alumina, silica, magnesia, titania, or zirconia.

The catalyst is used for removing Co, hydrocarbons, and nitrogen oxide(s) from car exhausts.

O/O

FILE SEGMENT: CPI

FIELD AVAILABILITY: AB

MANUAL CODES: CPI: A12-T04; A12-W11B; E10-J02D; E31-H01; E31-N04;  
 H06-C03; J01-E02D; J04-E04; N02; N03;  
 N06-E

ABEQ US 4483940 A UPAB: 19930925

Prod'n. of honeycomb catalyst carrier comprises application of a coating of

water-soluble (co)polymer to the surface of a ceramic, monolithic honeycomb carrier and then deposition of the catalyst component on and within the carrier. Pref. polymers are polyvinyl alcohol, polyacrylic acid or its salts, and maleic acid copolymers or their salts.

Pref. an active refractory metal oxide is also applied in the form of a water-soluble salt which is added to the catalyst soln., and which yields the corresp. metal oxide (e.g. alumina) on heating. Pref. catalysts are noble metal catalysts.

**ADVANTAGE** - The prods. have improved mechanical strength and resistance to thermal shock.

L106 ANSWER 7 OF 7 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

ACCESSION NUMBER: 1982-04416E [03] WPIX

TITLE: Photolytic conversion of water into hydrogen - is mediated by catalytic dispersion of fine noble metal particles admixed with alkylene glycol **polymers** as **protective** agents.

DERWENT CLASS: A97 E36 J04

INVENTOR(S): BRUGGER, P A; CUENDET, P; GRATZEL, M

PATENT ASSIGNEE(S): (ENGH) ENGELHARD MINERALS CORP

COUNTRY COUNT: 13

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
GB 2079170	A	19820120	(198203)*		9		
FR 2486511	A	19820115	(198208)				
SE 8104232	A	19820208	(198208)				
NL 8103048	A	19820201	(198209)				
BR 8104306	A	19820323	(198214)				
DE 3126797	A	19820415	(198216)				
JP 57048345	A	19820319	(198217)				
US 4367131	A	19830104	(198304)				
ZA 8103758	A	19821206	(198308)				
CA 1151139	A	19830802	(198334)				
IL 62998	A	19840531	(198429)				
GB 2079170	B	19850103	(198501)				
CH 647690	A	19850215	(198512)				
IT 1171369	B	19870610	(199004)				

#### APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
GB 2079170	A	GB 1980-22339	19800708

PRIORITY APPLN. INFO: GB 1980-22339 19800708

INT. PATENT CLASSIF.: B01J019-08; B01J019-12; B01J023-38; B01J031-06; B01J033-00; B01J035-12; B01J037-00; C01B001-03; C01B003-06; C25B001-02; C25B011-06

#### BASIC ABSTRACT:

GB 2079170 A UPAB: 19930915

A catalyst (I) capable of forming a stable dispersion in an aqueous medium for mediating the evolution of hydrogen by photolysis comprises an intimate admixture of at least one Noble metals (II) in finely divided form and a water permeable protective agent (III) adsorptive to the metal. (III) is at least one alkylene glycol polymers having units -O-(CH<sub>2</sub>)<sub>(n)</sub>-O- where n is at least 1 and in which at least a portion of polymer is composed of monomer units having an equal to or greater than 3.

The particle size of (I) is pref. less than 50 Angstrom unit in dia. The metal (II) Pt, Pd, Rh, Ru, Ir, Os, Ag or Au. The (III) has a mol. weight 200-200,000 and is especially a copolymer of ethylene glycol and propylene glycol or Carbowax 20-M (RTM). Preferred combination of (II) and (III) is Pt and Carbowax 20-M (RTM).

The stabilised catalysts in finely dispersed form significantly improve the yields of hydrogen gas.

FILE SEGMENT: CPI

FIELD AVAILABILITY: AB

MANUAL CODES: CPI: A05-H01; A12-W11B; E31-A; J04-E04; N02-E;  
N02-F02

ABEQ GB 2079170 B UPAB: 19930915

A catalyst (I) capable of forming a stable dispersion in an aq. medium for mediating the evolution of hydrogen by photolysis comprises an intimate admixture of at least one Noble metals (II) in finely divided form and a water permeable protective agent (III) adsorptive to the metal. (III) is at least one alkylene glycol polymers having units -O-(CH<sub>2</sub>)<sub>(n)</sub>-O- where n is at least 1 and in which at least a portion of polymer is composed of monomer units having an equal to or greater than 3.

The particle size of (I) is pref. less than 50 Angstrom unit in dia. The metal (II) Pt, Pd, Rh, Ru, Ir, Os, Ag or Au. The (III) has a mol. wt. 200-200,000 and is esp. a copolymer of ethylene glycol and propylene glycol or Carbowax 20-M (RTM). Preferred combination of (II) and (III) is Pt and Carbowax 20-M (RTM).

The stabilised catalysts in finely dispersed form significantly improve the yields of hydrogen gas.

=> => d l160 ibib hitstr abs 55

YOU HAVE REQUESTED DATA FROM FILE 'WPIX, EMBASE, USPATFULL, PCTFULL, HCPLUS' -  
CONTINUE? (Y)/N:y

'HITSTR' IS NOT A VALID FORMAT

In a multifile environment, a format can only be used if it is valid in at least one of the files. Refer to file specific help messages or the STNGUIDE file for information on formats available in individual files.

REENTER DISPLAY FORMAT FOR ALL FILES (FILEDEFAULT):ibib abs

L160 ANSWER 55 OF 85 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.  
on STN

ACCESSION NUMBER: 2003266481 EMBASE

TITLE: Unexpected effects of trace impurities on the properties of polymer-stabilized ruthenium colloids from different sources of ruthenium(III) chloride hydrate.

AUTHOR: Liu M.; He B.; Liu H.; Yan X.

CORPORATE SOURCE: H. Liu, Center for Molecular Science, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100080, China. hfliu@infoc3.icas.ac.cn

SOURCE: Journal of Colloid and Interface Science, (15 Jul 2003) 263/2 (461-466).

Refs: 39

ISSN: 0021-9797 CODEN: JCISAS

COUNTRY: United States

DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 029 Clinical Biochemistry

LANGUAGE: English

SUMMARY LANGUAGE: English

AB The stability and the catalytic performances of polyvinylpyrrolidone-

stabilized ruthenium colloids (PVP-Ru) prepared by using RuCl<sub>3</sub>.ovrhdot.xH<sub>2</sub>O of different sources have been investigated. The trace impurity content of platinum and palladium in RuCl<sub>3</sub>.ovrhdot.xH<sub>2</sub>O was demonstrated to be the main factors affecting the properties of PVP-Ru colloids. .COPYRGT. 2003 Elsevier Inc. All rights reserved.

=> d l160 ibib abs 56-80

YOU HAVE REQUESTED DATA FROM FILE 'WPIX, EMBASE, USPATFULL, PCTFULL, HCAPLUS' -  
CONTINUE? (Y)/N:y

L160 ANSWER 56 OF 85 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.  
on STN

ACCESSION NUMBER: 2003386941 EMBASE

TITLE: Terpyridine-based silica supports prepared by ring-opening metathesis polymerization for the selective extraction of noble metals.

AUTHOR: Glatz I.; Mayr M.; Hoogenboom R.; Schubert U.S.; Buchmeiser M.R.

CORPORATE SOURCE: M.R. Buchmeiser, Inst. fur Analyt. Chem./Radiochemie, Universitat Innsbruck, Innrain 52a, A-6020 Innsbruck, Austria. michael.r.buchmeiser@uibk.ac.at

SOURCE: Journal of Chromatography A, (10 Oct 2003) 1015/1-2 (65-71).

Refs: 51

ISSN: 0021-9673 CODEN: JCRAEY

COUNTRY: Netherlands

DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation

029 Clinical Biochemistry

LANGUAGE: English

SUMMARY LANGUAGE: English

AB The synthesis of a terpyridine-based sorbent for solid-phase extraction (SPE) of noble metal ions is described. For this purpose, 4'- (norborn-2-en-5-ylmethoxy)terpyridine was copolymerized with norborn-2-ene via Mo(N-2,6-i-Pr(2)-C(6)H(3)) (=CHCMe (2)Ph) (OC(CH(3))(CF(3))(2)) (2)-catalyzed ring-opening metathesis polymerization (ROMP) to give a poly(norbornene(900)-b-4'- (norborn-2-en-5-ylmethoxy)terpyridine(60)) block-copolymer. This block-copolymer was used for the preparation of **polymer-coated** silica 60 (4.8wt.% coating), which was investigated for its extraction capabilities for Cr(III), Mn(II), Re(II), Fe(III), Ru(III), Co(II), Rh(III), Ir(III), Ni(II), Pd(II), Pt(II), Cu(II), Ag(I), Au(III), Zn(II), Cd(II) and Hg(II), at different pH. Under competitive conditions and at pH < 0.6, the selectivity order was Pd ≈ Ag ≈ Au ≈ Pt > Re > Ir > Rh > Ru > Fe > Cr ≈ Mn ≈ Cd ≈ Zn. Enhanced selectivity was observed at pH = 3.5, the order was Au > Hg > Pd ≈ Ag > Rh > Pt > Ir ≈ Re > Cu > Co ≈ Zn ≈ Cd ≈ Ni > Cr > Mn. The maximum metal loading that was achieved under non-competitive conditions was >6mg/g for Au(III), Hg(II), Pd(II) and Ag(I). Even under competitive conditions, loadings of >6mg/g were realized for Au(III) and Hg(II). Quantitative recoveries >97% were observed for all metals in case loading was stopped before reaching the point of breakthrough. .COPYRGT. 2003 Elsevier B.V. All rights reserved.

L160 ANSWER 57 OF 85 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.  
on STN

ACCESSION NUMBER: 2000112610 EMBASE  
 TITLE: **Catalysis of polymer-protected**  
**Ni/Pd bimetallic nano-clusters for hydrogenation of**  
**nitrobenzene derivatives.**  
 AUTHOR: Lu P.; Toshima N.  
 CORPORATE SOURCE: N. Toshima, Department of Applied Chemistry, School of Engineering, University of Tokyo, Hongo, Bunkyo-ku, Tokyo 113-8656, Japan  
 SOURCE: Bulletin of the Chemical Society of Japan, (2000) 73/3 (751-758).  
 Refs: 59  
 ISSN: 0009-2673 CODEN: BCSJA8  
 COUNTRY: Japan  
 DOCUMENT TYPE: Journal; Article  
 FILE SEGMENT: 029 Clinical Biochemistry  
 LANGUAGE: English  
 SUMMARY LANGUAGE: English  
 AB Poly(N-vinyl-2-pyrrolidone)-protected Ni/Pd bimetallic colloidal nanoparticles, prepared by the polyol reduction method, have been proved to have a nanometer-sized alloy structure with both metals at zerovalent state by our previous study of TEM, XRD, EXAFS, and XPS analyses. Here, dispersions of these bimetallic nanoclusters with different composition ratios are extensively examined as **catalysts** for the hydrogenation of various nitrobenzene derivatives: i.e., p-nitrotoluene, p-nitroanisole, 1-nitronaphthalene, p-nitrobenzonitrile, and methyl p-nitrobenzoate, at 30 °C under an atmospheric pressure of hydrogen. These bimetallic nanoclusters exhibit excellent catalytic properties for the reduction of a nitro group to an amino group with high selectivity. The catalytic activity strongly depends on the metal composition of the particles. The maximum catalytic activity can be observed at a certain intermediate composition ratio, being 3-4 times greater than that of a monometallic colloidal Pd **catalyst**. A bimetallic nanocluster with the mole ratio of Ni: Pd = 1/4 was the most active **catalyst** for the hydrogenation of para-substituted nitrobenzenes. An approximately linear relationship exists between the hydrogenation rate of the substrate with an electron-donating or electron-withdrawing group and the corresponding Hammett constant of the substituent, as well as between the hydrogenation rate and the LUMO energy level of the substrate.

L160 ANSWER 58 OF 85 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.  
 on STN  
 ACCESSION NUMBER: 1999206266 EMBASE  
 TITLE: Enantioselective hydrogenation of pyruvates over  
 polymer-stabilized and supported platinum  
 nanoclusters.  
 AUTHOR: Zuo X.; Liu H.; Guo D.; Yang X.  
 CORPORATE SOURCE: H. Liu, Chinese Academy of Sciences, China Petro-Chemical Corporation, Institute of Chemistry, Beijing 100080, China  
 SOURCE: Tetrahedron, (18 Jun 1999) 55/25 (7787-7804).  
 Refs: 50  
 ISSN: 0040-4020 CODEN: TETRAB  
 PUBLISHER IDENT.: S 0040-4020(99)00415-9  
 COUNTRY: United Kingdom  
 DOCUMENT TYPE: Journal; Article  
 FILE SEGMENT: 029 Clinical Biochemistry  
 037 Drug Literature Index  
 LANGUAGE: English  
 SUMMARY LANGUAGE: English  
 AB The cinchonidine-modified enantioselective hydrogenation of pyruvates has

been studied over polyvinylpyrrolidone-stabilized platinum (PVP-Pt) and the corresponding alumina-supported platinum (Al<sub>2</sub>O<sub>3</sub>-Pt) clusters. It is shown that the **catalysts** with particle size less than 2.0 nm demonstrate >90% enantioselectivity in favor of (R)-lactates. The solvent effect is similar to that over the conventional supported platinum **catalyst** except for tetrahydrofuran. These colloidal and supported clusters are stable with no obvious loss of activity and enantioselectivity even after 18 months standing in air at room temperature. Molecular mechanics calculations of the modifier- reactant interaction on the platinum surface suggest that it is possible to obtain good enantioselectivity on the small clusters.

L160 ANSWER 59 OF 85 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.  
on STN

ACCESSION NUMBER: 1998310968 EMBASE  
 TITLE: Synthesis of ion conducting **polymer**  
**protected** nanometer size platinum colloids.  
 AUTHOR: Dalmia A.; Lineken C.L.; Savinell R.F.  
 CORPORATE SOURCE: A. Dalmia, H Power Corporation, 60 Montgomery Street,  
 Belleville, NJ 07109, United States  
 SOURCE: Journal of Colloid and Interface Science, (15 Sep 1998)  
 205/2 (535-537).  
 Refs: 17  
 ISSN: 0021-9797 CODEN: JCISA5  
 COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article  
 FILE SEGMENT: 029 Clinical Biochemistry  
 LANGUAGE: English  
 SUMMARY LANGUAGE: English

AB Pt particles have been prepared by reduction of hexachloroplatinic acid with ethylene glycol in the presence of a negatively charged polymer poly(N-sulfonatopropyl p-benzamide). The average size of platinum particles was investigated by transmission electron microscopy and found to be in the nanometer size range. The effects of the polymer content on the average particle size were studied. The average particle size of the Pt colloid prepared from solutions containing a polymer/Pt weight ratio of 20 and 0.2, respectively, varied from 2.45 to 5.9 nm.

L160 ANSWER 60 OF 85 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.  
on STN

ACCESSION NUMBER: 97248150 EMBASE  
 DOCUMENT NUMBER: 1997248150  
 TITLE: Solvent-resistant carbon electrodes screen printed onto plastic for use in biosensors.  
 AUTHOR: Kroger S.; Turner A.P.F.  
 CORPORATE SOURCE: A.P.F. Turner, Cranfield Biotechnology Centre, Cranfield University, Cranfield, Bedfordshire, MK43 OAL, United Kingdom  
 SOURCE: Analytica Chimica Acta, (1997) 347/1-2 (9-18).  
 Refs: 19  
 ISSN: 0003-2670 CODEN: ACACAM  
 PUBLISHER IDENT.: S 0003-2670(96)00634-4  
 COUNTRY: Netherlands  
 DOCUMENT TYPE: Journal; Article  
 FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation  
 029 Clinical Biochemistry  
 LANGUAGE: English  
 SUMMARY LANGUAGE: English  
 AB A three electrode design using solvent resistant materials is reported,

enabling the production of screen printed electrodes for use in biosensor applications involving water-miscible organic solvents. Heat stabilised polyester sheets were used as base materials in combination with carbon basal tracks and an epoxy-based polymer protective coating. The new electrodes avoid problems with solvent induced baseline shifts displayed by conventional screen-printed electrodes. The material for the underlying basal track has been changed from silver to carbon ink to reduce the number of materials involved in the production and avoid possible interferences. In addition, the design is readily applied in biosensor applications. Different methods for the incorporation of a rhodium catalyst are discussed. The application of the electrode system modified with the rhodium catalyst for the amperometric detection of hydrogen peroxide in different concentrations of methanol, isopropanol and ethanol is demonstrated.

L160 ANSWER 61 OF 85 USPATFULL on STN

ACCESSION NUMBER: 2004:120135 USPATFULL

TITLE: Solid matrix therapeutic compositions

INVENTOR(S): Unger, Evan C., Tucson, AZ, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004091541	A1	20040513
APPLICATION INFO.:	US 2003-622027	A1	20030716 (10)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 2001-828762, filed on 9 Apr 2001, ABANDONED Division of Ser. No. US 1998-75477, filed on 11 May 1998, ABANDONED		

	NUMBER	DATE	
PRIORITY INFORMATION:	US 1997-46379P	19970513 (60)	<--
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	APPLICATION		
LEGAL REPRESENTATIVE:	REED & EBERLE LLP, 800 MENLO AVENUE, SUITE 210, MENLO PARK, CA, 94025		
NUMBER OF CLAIMS:	38		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	1 Drawing Page(s)		
LINE COUNT:	4909		
CAS INDEXING IS AVAILABLE FOR THIS PATENT.			
AB	The present invention is directed to a solid porous matrix comprising a surfactant in combination with a bioactive agent. The solid porous matrix may be prepared by combining a surfactant and a therapeutic, together with a solvent, to form an emulsion containing random aggregates of the surfactant and the therapeutic, and processing the emulsion by controlled drying, or controlled agitation and controlled drying to form the solid porous matrix.		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 62 OF 85 USPATFULL on STN

ACCESSION NUMBER: 2004:2574 USPATFULL

TITLE: Catalytic process for the modification of carbohydrates, alcoh compounds

INVENTOR(S): Capan, Emine, Brauns  
OF  
Hahnlein, Marc Sasch  
REPUBLIC OF  
Prusse, Ulf, Brauns

droxy

REPUBLIC

DERAL

REPUBLIC OF

*applicants*

Vorlop, Klaus-Dieter, Braunschweig, GERMANY, FEDERAL  
 REPUBLIC OF  
 Begli, Alireza Haji, Ramsen, GERMANY, FEDERAL REPUBLIC  
 OF  
 SUDZUCKER AKTIENGESELLSCHAFT (non-U.S. corporation)

## PATENT ASSIGNEE(S) :

NUMBER	KIND	DATE
--------	------	------

## PATENT INFORMATION:

US 2004002597 A1 20040101

## APPLICATION INFO.:

US 2003-340901 A1 20030110 (10)

## RELATED APPLN. INFO.:

Division of Ser. No. US 2001-936891, filed on 19 Oct 2001, PENDING

NUMBER	DATE
--------	------

## PRIORITY INFORMATION:

DE 1999-19911504 19990316 &lt;--

## DOCUMENT TYPE:

Utility

## FILE SEGMENT:

APPLICATION

## LEGAL REPRESENTATIVE:

OSTROLENK, FABER, GERB &amp; SOFFEN, LLP, 1180 Avenue of the Americas, New York, NY, 10036-8403

## NUMBER OF CLAIMS:

18

## EXEMPLARY CLAIM:

1

## NUMBER OF DRAWINGS:

7 Drawing Page(s)

## LINE COUNT:

644

## CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention relates to the industrial conversion of carbohydrates, alcohols, aldehydes or polyhydroxy compounds in aqueous phase. According to the invention a **catalytic** method is used for the conversion, using a metal **catalyst** consisting of **polymer-stabilized** nanoparticles. A **catalyst** of this type is not deactivated by the conversion reaction as long as the stabilizing interaction between the polymer and the nanoparticles is maintained.

## CAS INDEXING IS AVAILABLE FOR THIS PATENT.

## L160 ANSWER 63 OF 85 USPATFULL on STN

## ACCESSION NUMBER: 2003:201606 USPATFULL

## TITLE:

Catalytic process for the modification of carbohydrates, alcohols, aldehydes or polyhydroxy compounds

## INVENTOR(S) :

Capan, Emine, Braunschweig, GERMANY, FEDERAL REPUBLIC OF

Hahnlein, Marc Sascha, Mannheim, GERMANY, FEDERAL REPUBLIC OF

Prusse, Ulf, Braunschweig, GERMANY, FEDERAL REPUBLIC OF Vorlop, Klaus-Dieter, Braunschweig, GERMANY, FEDERAL REPUBLIC OF

Begli, Alireza Haji, Ramsen, GERMANY, FEDERAL REPUBLIC OF

## PATENT ASSIGNEE(S) :

SUDZUCKER AKTIENGESELLSCHAFT (non-U.S. corporation)

NUMBER	KIND	DATE
--------	------	------

## PATENT INFORMATION:

US 2003139594 A1 20030724

## APPLICATION INFO.:

US 2003-340913 A1 20030110 (10)

## RELATED APPLN. INFO.:

Division of Ser. No. US 2001-936891, filed on 19 Oct 2001, PENDING

NUMBER	DATE
--------	------

PRIORITY INFORMATION: DE 1999-19911504 19990316 <--  
 DOCUMENT TYPE: Utility  
 FILE SEGMENT: APPLICATION  
 LEGAL REPRESENTATIVE: OSTROLENK, FABER, GERB & SOFFEN, LLP, Attorneys at Law,  
 1180 Avenue of the Americas, New York, NY, 10036-8403  
 NUMBER OF CLAIMS: 18  
 EXEMPLARY CLAIM: 1  
 NUMBER OF DRAWINGS: 7 Drawing Page(s)  
 LINE COUNT: 645

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention relates to the industrial conversion of carbohydrates, alcohols, aldehydes or polyhydroxy compounds in aqueous phase. According to the invention a **catalytic** method is used for the conversion, using a metal **catalyst** consisting of **polymer-stabilized** nanoparticles. A **catalyst** of this type is not deactivated by the conversion reaction as long as the stabilizing interaction between the polymer and the nanoparticles is maintained.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 64 OF 85 USPATFULL on STN  
 ACCESSION NUMBER: 2003:530 USPATFULL  
 TITLE: Method and product for removing carcinogens from tobacco smoke  
 INVENTOR(S): Bereman, Robert D., Apex, NC, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003000538	A1	20030102
APPLICATION INFO.:	US 2001-7724	A1	20011109 (10)

	NUMBER	DATE
PRIORITY INFORMATION:	US 2000-247163P	20001110 (60) <--
	US 2001-322132P	20010911 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	KNOBBE MARTENS OLSON & BEAR LLP, 620 NEWPORT CENTER DRIVE, SIXTEENTH FLOOR, NEWPORT BEACH, CA, 92660	

NUMBER OF CLAIMS: 48  
 EXEMPLARY CLAIM: 1  
 NUMBER OF DRAWINGS: 9 Drawing Page(s)  
 LINE COUNT: 3568

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention relates to smoking articles such as cigarettes, and in particular to **catalytic** systems containing metallic or carbonaceous particles that reduce the content of certain harmful or carcinogenic substances, including polycyclic aromatic hydrocarbons, tobacco-specific nitrosamines, carbazole, phenol, and catechol, in mainstream cigarette smoke and in side stream cigarette smoke.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 65 OF 85 USPATFULL on STN  
 ACCESSION NUMBER: 2002:287094 USPATFULL  
 TITLE: Novel acoustically active drug delivery systems  
 INVENTOR(S): Unger, Evan C., Tucson, AZ, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002159952	A1	20021031
APPLICATION INFO.:	US 2002-84855	A1	20020227 (10)
RELATED APPLN. INFO.:	Division of Ser. No. US 1998-75343, filed on 11 May 1998, PENDING		

	NUMBER	DATE	
PRIORITY INFORMATION:	US 1997-46379P	19970513 (60)	<--
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	APPLICATION		
LEGAL REPRESENTATIVE:	Woodcock Washburn LLP, One Liberty Place - 46th Floor, Philadelphia, PA, 19103		
NUMBER OF CLAIMS:	46		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	9 Drawing Page(s)		
LINE COUNT:	5458		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention is directed to targeted therapeutic delivery systems comprising a gas or gaseous precursor filled microsphere wherein said gas or gaseous precursor filled microsphere comprises an oil, a surfactant, and a therapeutic compound. Methods of preparing the targeted therapeutic delivery systems are also embodied by the present invention which comprise processing a solution comprising an oil and a surfactant in the presence of a gaseous precursor, at a temperature below the gel to liquid crystalline phase transition temperature of the surfactant to form gas or gaseous precursor filled microsphere, and adding to said microspheres a therapeutic compound resulting in a targeted therapeutic delivery system, wherein said processing is selected from the group consisting of controlled agitation, controlled drying, and a combination thereof.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 66 OF 85 USPATFULL on STN  
 ACCESSION NUMBER: 2002:72457 USPATFULL  
 TITLE: SOLID POROUS MATRICES AND METHODS OF MAKING AND USING THE SAME  
 INVENTOR(S): UNGER, EVAN C., TUCSON, AZ, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002039594	A1	20020404
APPLICATION INFO.:	US 1998-75477	A1	19980511 (9) <--

	NUMBER	DATE	
PRIORITY INFORMATION:	US 1997-46379P	19970513 (60) <--	
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	APPLICATION		
LEGAL REPRESENTATIVE:	WOODCOCK WASHBURN KURTZ, MACKIEWICZ AND NORRIS, ONE LIBERTY PLACE 46TH FLOOR, PHILADELPHIA, PA, 19103		
NUMBER OF CLAIMS:	106		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	1 Drawing Page(s)		
LINE COUNT:	5207		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention is directed to a solid porous matrix comprising a solvent and a surfactant in combination with a bioactive agent. The

solvent and the surfactant may, if desired, form vesicles, an agglomeration of which comprises the matrix. The composition optionally comprises a gas or a gaseous precursor. The emulsion may be dried, and subsequently reconstituted in an aqueous or organic solution.

The present invention is also directed to a method of preparing a solid porous matrix comprising combining a solvent, a surfactant, and a therapeutic to form an emulsion; and processing the emulsion by controlled drying, or controlled agitation and controlled drying to form a solid porous matrix. The resulting solid porous matrix may also comprise a gas or gaseous precursor and be added to a resuspending medium.

A method for the controlled delivery of a targeted therapeutic to a region of a patient is another embodiment of the present invention. The method comprises administering to the patient a composition having a solid porous matrix comprising a solvent, a surfactant, a therapeutic, and a gas or gaseous precursor, monitoring the composition using energy to determine the presence of the composition in the region; and releasing the therapeutic from the composition in the region using energy.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 67 OF 85 USPATFULL on STN

ACCESSION NUMBER: 2002:17399 USPATFULL

TITLE: Saccharide sensing molecules having enhanced fluorescent properties

INVENTOR(S): Satcher, Joe H., JR., Patterson, CA, UNITED STATES  
Lane, Stephen M., Oakland, CA, UNITED STATES  
Darrow, Christopher B., Pleasanton, CA, UNITED STATES  
Cary, Douglas R., Oakland, CA, UNITED STATES  
Tran, Joe Anh, San Diego, CA, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002010279	A1	20020124
	US 6673625	B2	20040106
APPLICATION INFO.:	US 2001-823522	A1	20010330 (9)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 2000-663567, filed on 15 Sep 2000, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	US 1999-154103P	19990915 (60) <--
	US 2000-194673P	20000404 (60) <--
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	GATES & COOPER LLP, HOWARD HUGHES CENTER, 6701 CENTER DRIVE WEST, SUITE 1050, LOS ANGELES, CA, 90045	
NUMBER OF CLAIMS:	18	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	22 Drawing Page(s)	
LINE COUNT:	2453	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention provides formulae for fluorescent compounds that have a number of properties which make them uniquely suited for use in sensors of analytes such as saccharides. The advantageous fluorescent properties include favorable excitation wavelengths, emission wavelengths, fluorescence lifetimes, and photostability. Additional

advantageous properties include enhanced aqueous solubility, as well as temperature and pH sensitivity. The compound comprises an aryl or a substituted phenyl botonic acid that acts as a substrate recognition component, a fluorescence switch component, and a fluorophore.

Fluorescent compounds are described that are excited at wavelengths greater than 400 nm and emit at wavelengths greater than 450 nm, which is advantageous for optical transmission through skin. The fluorophore is typically selected from transition metal-ligand complexes and thiazine, oxazine, oxazone, or oxazine-one as well as anthracene compounds. The fluorescent compound can be immobilized in a glucose permeable biocompatible polymer matrix that is implantable below the skin.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 68 OF 85 USPATFULL on STN  
 ACCESSION NUMBER: 2002:167866 USPATFULL  
 TITLE: Acoustically active drug delivery systems  
 INVENTOR(S): Unger, Evan C., Tucson, AZ, United States  
 PATENT ASSIGNEE(S): Bristol-Myers Squibb Medical Imaging, Inc., Princeton, NJ, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6416740	B1	20020709	
APPLICATION INFO.:	US 1998-75343		19980511 (9)	<--

	NUMBER	DATE	
PRIORITY INFORMATION:	US 1997-46379P	19970513 (60)	<--
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	GRANTED		
PRIMARY EXAMINER:	Dudash, Diana		
ASSISTANT EXAMINER:	Sharareh, Shahnam		
LEGAL REPRESENTATIVE:	Woodcock Washburn LLP		
NUMBER OF CLAIMS:	15		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	9 Drawing Figure(s); 9 Drawing Page(s)		
LINE COUNT:	5660		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention is directed to targeted therapeutic delivery systems comprising a gas or gaseous precursor filled microsphere wherein said gas or gaseous precursor filled microsphere comprises an oil, a surfactant, and a therapeutic compound. Methods of preparing the targeted therapeutic delivery systems are also embodied by the present invention which comprise processing a solution comprising an oil and a surfactant in the presence of a gaseous precursor, at a temperature below the gel to liquid crystalline phase transition temperature of the surfactant to form gas or gaseous precursor filled microsphere, and adding to said microspheres a therapeutic compound resulting in a targeted therapeutic delivery system, wherein said processing is selected from the group consisting of controlled agitation, controlled drying, and a combination thereof.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 69 OF 85 USPATFULL on STN  
 ACCESSION NUMBER: 2001:144937 USPATFULL  
 TITLE: Solid matrix therapeutic compositions  
 INVENTOR(S): Unger, Evan C., Tucson, AZ, United States

PATENT ASSIGNEE(S) : ImaRx Therapeutics, Inc. (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2001018072	A1	20010830
APPLICATION INFO.:	US 2001-828762	A1	20010409 (9)
RELATED APPLN. INFO.:	Division of Ser. No. US 1998-75477, filed on 11 May 1998, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	US 1997-46379P	19970513 (60)
DOCUMENT TYPE:	Utility	<--
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	Mackiewicz & Norris LLP, One Liberty Place - 46th Floor, Philadelphia, PA, 19103	
NUMBER OF CLAIMS:	38	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	1 Drawing Page(s)	
LINE COUNT:	4899	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention is directed to a solid porous matrix comprising a surfactant in combination with a bioactive agent. The solid porous matrix may be prepared by combining a surfactant and a therapeutic, together with a solvent, to form an emulsion containing random aggregates of the surfactant and the therapeutic, and processing the emulsion by controlled drying, or controlled agitation and controlled drying to form the solid porous matrix.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 70 OF 85 USPATFULL on STN  
 ACCESSION NUMBER: 1999:78190 USPATFULL  
 TITLE: Metal oxide matrix biosensors  
 INVENTOR(S): Rauh, R. David, Newton, MA, United States  
 PATENT ASSIGNEE(S): EIC Laboratories, Inc., Norwood, MA, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5922183		19990713 <--
APPLICATION INFO.:	US 1997-880615		19970623 (8) <--
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Bell, Bruce F.		
NUMBER OF CLAIMS:	24		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	7 Drawing Figure(s); 7 Drawing Page(s)		
LINE COUNT:	946		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A thin film matrix for biomolecules, suitable for forming electrochemical and biosensors comprising a general class of materials known as hydrous metal oxides which are also conductive or semiconductive of electrons and which have been shown to have excellent stability against dissolution or irreversible reaction in aqueous and nonaqueous solutions. The composites are bifunctional, providing both amperometric and potentiometric (pH) transduction. The thin film composites of the oxides and biological molecules such as enzymes, antibodies, antigens and DNA strands can be used for both amperometric and potentiometric sensing. Hydrous Ir oxide is the preferred matrix

embodiment, but conducting or semiconducting oxides, of Ru, Pd, Pt, Zr, Ti and Rh and mixtures thereof have similar features. The hydrous oxides are very stable against oxidation damage.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 71 OF 85 USPATFULL on STN  
 ACCESSION NUMBER: 97:35804 USPATFULL  
 TITLE: Biosensor and interface membrane  
 INVENTOR(S): Turner, Robin F. B., Vancouver, Canada  
                  Kilburn, Douglas G., Vancouver, Canada  
                  Phelps, Michael R., Kingston, Canada  
 PATENT ASSIGNEE(S): The University of British Columbia -  
                     University-Industry Liaison Office, Vancouver, Canada  
                     (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5624537		19970429	<--
APPLICATION INFO.:	US 1994-309338		19940920 (8)	<--
DOCUMENT TYPE:	Utility			
FILE SEGMENT:	Granted			
PRIMARY EXAMINER:	Bell, Bruce F.			
LEGAL REPRESENTATIVE:	Christensen O'Connor Johnson & Kindness PLLC			
NUMBER OF CLAIMS:	12			
EXEMPLARY CLAIM:	1			
NUMBER OF DRAWINGS:	12 Drawing Figure(s); 12 Drawing Page(s)			
LINE COUNT:	1818			

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A regenerable biosensor probe adapted for positioning in a bioreactor comprises a selectively permeable interface membrane, a porous protein-receiving matrix adjacent to the interface membrane, an indicating electrode, an inlet conduit through which fresh protein conjugate may flow to the protein-receiving matrix, and an outlet conduit through which spent protein conjugate may be removed from the protein-receiving matrix. A selectively permeable interface membrane, which may be used in a biosensor system to separate biochemical, optical or other processes from an analyte matrix comprises a supporting mesh, a perfluorosulfonic acid polymer impregnated substrate and a homogenous film of perfluorosulfonic acid polymer.

A method of preparing this interface membrane comprises fixing a substrate on to a supporting mesh to form a substrate membrane, casting a perfluorosulfonic acid polymer on the substrate membrane and curing the product to so formed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 72 OF 85 USPATFULL on STN  
 ACCESSION NUMBER: 97:3701 USPATFULL  
 TITLE: Subcutaneous glucose electrode  
 INVENTOR(S): Heller, Adam, 5317 Valburn Cir., Austin, TX, United States 78731  
                  Pishko, Michael V., 4304C Duval Rd., Austin, TX, United States 78759

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5593852		19970114	<--
APPLICATION INFO.:	US 1994-299526		19940901 (8)	<--

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1993-161682, filed on 2 Dec 1993, now patented, Pat. No. US 5356786

DOCUMENT TYPE: Utility

FILE SEGMENT: Granted

PRIMARY EXAMINER: Kight, John

ASSISTANT EXAMINER: Leary, Louise N.

LEGAL REPRESENTATIVE: Merchant, Gould, Smith, Edell, Welter & Schmidt, P.A.

NUMBER OF CLAIMS: 31

EXEMPLARY CLAIM: 1

NUMBER OF DRAWINGS: 10 Drawing Figure(s); 10 Drawing Page(s)

LINE COUNT: 1059

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A small diameter flexible electrode designed for subcutaneous in vivo amperometric monitoring of glucose is described. The electrode is designed to allow "one-point" in vivo calibration, i.e., to have zero output current at zero glucose concentration, even in the presence of other electroreactive species of serum or blood. The electrode is preferably three or four-layered, with the layers serially deposited within a recess upon the tip of a polyamide insulated gold wire. A first glucose concentration-to-current transducing layer is overcoated with an electrically insulating and glucose flux limiting layer (second layer) on which, optionally, an immobilized interference-eliminating horseradish peroxidase based film is deposited (third layer). An outer (fourth) layer is biocompatible.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 73 OF 85 USPATFULL on STN

ACCESSION NUMBER: 95:50070 USPATFULL

TITLE: Electrode having a polymer coating with a redox enzyme bound thereto, the polymer coating being formed on the walls of pores extending through a porous membrane

INVENTOR(S): Koopal, Cornelis G. J., Zeist, Netherlands  
Schasfoort, Richardus B. M., Amersfoort, Netherlands  
Nolte, Roeland J. M., Nijmegen, Netherlands

PATENT ASSIGNEE(S): Nederlandse Organisatie Voor Toegepast-Natuurwetenschappelijk Onderzoek Tno, Delft, Netherlands (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5422246		19950606 <--
	WO 9210584		19920625 <--
APPLICATION INFO.:	US 1993-75509		19930614 (8) <--
	WO 1991-NL263		19911213 <--
			19930614 PCT 371 date
			19930614 PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	NL 1990-2764	19901214 <--
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	Granted	
PRIMARY EXAMINER:	Beisner, William H.	
ASSISTANT EXAMINER:	Turner, Ralph G.	
LEGAL REPRESENTATIVE:	Young & Thompson	
NUMBER OF CLAIMS:	16	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	20 Drawing Figure(s); 17 Drawing Page(s)	
LINE COUNT:	1101	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB An electrode is composed of a membrane, provided with open pores running through said membrane, the walls of the pores having an electrically conducting polymer coating, containing a redox enzyme bound thereto. In these type of electrodes a direct electron transfer is possible between the redox enzyme, e.g. glucose oxidase, and the electrically conducting polymer, e.g. polypyrrole. Such an electrode, which can be produced in a simple manner, has extensive application possibilities such as, for example, in a biosensor or in a production installation for the preparation of specific chemicals. As starting materials for the electrodes of the invention, use can be made of marketed porous membrane materials as well as of latex particles. The walls of the pores of porous membrane and the interstices of the latex particles respectively are provided with a thin layer of the electrically conducting polymer which in turn is provided with a redox enzyme suitable for the pursued aim.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 74 OF 85 USPATFULL on STN  
 ACCESSION NUMBER: 94:42120 USPATFULL  
 TITLE: Amperometric sensor for single and multicomponent analysis  
 INVENTOR(S): Gunasingham, Hari, Singapore, Singapore  
 PATENT ASSIGNEE(S): National University of Singapore, Kent Ridge, Singapore  
 (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5312590		19940517	<--
APPLICATION INFO.:	US 1989-342075		19890424 (7)	<--
DOCUMENT TYPE:	Utility			
FILE SEGMENT:	Granted			
PRIMARY EXAMINER:	Housel, James C.			
ASSISTANT EXAMINER:	Snay, Jeffrey R.			
LEGAL REPRESENTATIVE:	Garmong, Gregory O.			
NUMBER OF CLAIMS:	13			
EXEMPLARY CLAIM:	1			
NUMBER OF DRAWINGS:	15 Drawing Figure(s); 5 Drawing Page(s)			
LINE COUNT:	556			

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A device for detecting chemical species in liquids having one or more sensor elements is described. Each sensor element includes a test electrode coated with a perfluorinated ion-exchange polymer film incorporating a redox mediator; an immobilized enzyme layer and, over this, a semipermeable membrane. The invention discloses the method whereby the test electrode is normally kept at a zero potential and then poised at a positive potential for a few milliseconds during which time the test signal is evaluated. The invention formulates a method for calibrating each measurement sample and reference solution wells. These are symmetrically arranged with respect to the sensor element so that the center of the sample solution well and the center of the reference solution well are equidistant to the sensor element. Thus the diffusion of chemical species from the sample and reference solutions occurs equally and can be correlated. The invention additionally discloses a method for selectively detecting a number of species in a single sample drop through the provision of multi-sensor elements. The technique proposed in the invention is particularly suitable for the determination of glucose and cholesterol in biological fluids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 75 OF 85 USPATFULL on STN  
 ACCESSION NUMBER: 94:1256 USPATFULL  
 TITLE: Radiation shielding fabric  
 INVENTOR(S): Vaughn, George D., Ballwin, MO, United States  
 PATENT ASSIGNEE(S): Monsanto Company, St. Louis, MO, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5275861		19940104 <--
APPLICATION INFO.:	US 1992-820450		19920109 (7) <--
DISCLAIMER DATE:	20090121		
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1990-609718, filed on 13 Nov 1990, now patented, Pat. No. US 5082734 which is a continuation-in-part of Ser. No. US 1989-454565, filed on 21 Dec 1989, now abandoned And a continuation-in-part of Ser. No. US 1990-569882, filed on 20 Aug 1990, now abandoned		
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Ryan, Patrick J.		
ASSISTANT EXAMINER:	Lee, Kam F.		
LEGAL REPRESENTATIVE:	Kelley, Thomas E., Wachter, Mark F.		
NUMBER OF CLAIMS:	7		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	3 Drawing Figure(s); 2 Drawing Page(s)		
LINE COUNT:	1308		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Electromagnetic radiation shielding textile material comprising metal-coated fabric adapted to be applied with overlapping seams at least 4 cm wide to provide at least 80 dB of far-field shielding against electromagnetic radiation between 0.1 and 10 gigahertz. Fabric, e.g. non-woven nylon fabric, coated with at least one layer of electrolessly-deposited metal, e.g. at least 15 g/m.<sup>2</sup> copper, is useful as backing for wallpaper which can provide effective far-field shielding of electromagnetic radiation.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 76 OF 85 USPATFULL on STN  
 ACCESSION NUMBER: 92:5464 USPATFULL  
 TITLE: Catalytic, water-soluble polymeric films for metal coatings  
 INVENTOR(S): Vaughn, George D., Ballwin, MO, United States  
 PATENT ASSIGNEE(S): Monsanto Company, St. Louis, MO, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5082734		19920121 <--
APPLICATION INFO.:	US 1990-609718		19901113 (7) <--
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Ryan, Patrick J.		
LEGAL REPRESENTATIVE:	Kelley, Thomas E., Shear, Richard H.		
NUMBER OF CLAIMS:	59		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	3 Drawing Figure(s); 3 Drawing Page(s)		

LINE COUNT: 1807

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Metal coated articles where the metal is electrolessly deposited onto catalytic films prepared by thermally activating catalytically inert films formed from an aqueous solution comprising polymer, e.g. cellulosic, vinyl alcohol or oxyolefin polymers, and catalytic metal of Group 8, e.g. palladium. Copper electrolessly deposited on activated films exhibits high ductility similar to electrolytic copper, e.g. at least about 8 percent ductility.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 77 OF 85 USPATFULL on STN

ACCESSION NUMBER: 91:55790 USPATFULL

TITLE: Electrochemical detector for liquid chromatographic analysis of carbohydrates

INVENTOR(S): Kuwana, Theodore, Lawrence, KS, United States  
Marioli, Juan, Lawrence, KS, United StatesZadeii, Javad M., Lawrence, KS, United States  
PATENT ASSIGNEE(S): Shimadzu Corporation, Kyoto, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5031449		19910716 <--
APPLICATION INFO.:	US 1990-487317		19900302 (7) <--
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Williams, Hezron E.		
ASSISTANT EXAMINER:	Francos, W.		
LEGAL REPRESENTATIVE:	Armstrong, Nikaido, Marmelstein, Kubovcik & Murray		
NUMBER OF CLAIMS:	7		
EXEMPLARY CLAIM:	7		
NUMBER OF DRAWINGS:	13 Drawing Figure(s); 8 Drawing Page(s)		
LINE COUNT:	582		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A highly sensitive and selective electrochemical detector has been developed for the liquid chromatograph analysis of carbohydrates. This detector includes copper particles and copper particles coated with copper oxide particles dispersed in a perfluorosulfonate ionomer film which is cast onto the surface of a glassy carbon electrode. The copper is electrochemically dispersed into the perfluorosulfonate ionomer by a constant potential method. The response of the detector is based on the electrolytic generation of a higher oxidation state species of copper catalytically oxidizing carbohydrates in alkaline solutions at a pH greater than 13.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 78 OF 85 USPATFULL on STN

ACCESSION NUMBER: 86:43540 USPATFULL

TITLE: Perfluorosulfonic acid polymer-coated indicator electrodes

INVENTOR(S): Seago, James L., Bear, DE, United States

PATENT ASSIGNEE(S): E. I. Du Pont de Nemours and Company, Wilmington, DE, United States (U.S. corporation)

NUMBER	KIND	DATE
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PATENT INFORMATION: US 4604182 19860805 <--  
 APPLICATION INFO.: US 1985-696196 19850129 (6) <--  
 RELATED APPLN. INFO.: Division of Ser. No. US 1983-523168, filed on 15 Aug  
 1983, now patented, Pat. No. US 4517291  
 DOCUMENT TYPE: Utility  
 FILE SEGMENT: Granted  
 PRIMARY EXAMINER: Niebling, John F.  
 ASSISTANT EXAMINER: Chapman, Terryence  
 NUMBER OF CLAIMS: 11  
 EXEMPLARY CLAIM: 1  
 NUMBER OF DRAWINGS: 1 Drawing Figure(s); 1 Drawing Page(s)  
 LINE COUNT: 405

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method is described for the amperometric determination of the concentration in a biological sample of a constituent which is a substrate for an oxidase enzyme by (1) catalyzing the substrate with the enzyme, thereby consuming O<sub>2</sub> and producing H<sub>2</sub>O<sub>2</sub> and (2) measuring the O<sub>2</sub> consumption or H<sub>2</sub>O<sub>2</sub> production by means of an inert metal indicator electrode intimately coated with a thin film of a perfluorosulfonic acid polymer.

A reaction chamber is described which provides means for contacting the sample with the enzyme and means for making amperometric measurements utilizing inert metal indicator electrodes coated with a thin film of a perfluorosulfonic acid polymer.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 79 OF 85 USPATFULL on STN  
 ACCESSION NUMBER: 85:28513 USPATFULL  
 TITLE: Biological detection process using polymer-coated electrodes  
 INVENTOR(S): Seago, James L., Bear, DE, United States  
 PATENT ASSIGNEE(S): E. I. Du Pont de Nemours and Company, Wilmington, DE, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 4517291		19850514
APPLICATION INFO.:	US 1983-523168		19830815 (6)
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Williams, Howard S.		
ASSISTANT EXAMINER:	Chapman, Terryence		
NUMBER OF CLAIMS:	9		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	1 Drawing Figure(s); 1 Drawing Page(s)		
LINE COUNT:	395		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method is described for the amperometric determination of the concentration in a biological sample of a constituent which is a substrate for an oxidase enzyme by (1) catalyzing the substrate with the enzyme, thereby consuming O<sub>2</sub> and producing H<sub>2</sub>O<sub>2</sub> and (2) measuring the O<sub>2</sub> consumption or H<sub>2</sub>O<sub>2</sub> production by means of an inert metal indicator electrode intimately coated with a thin film of a perfluorosulfonic acid polymer.

A reaction chamber is described which provides means for contacting the sample with the enzyme and means for making amperometric measurements utilizing inert metal indicator electrodes coated with a thin film of a

perfluorosulfonic acid polymer.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L160 ANSWER 80 OF 85 USPATFULL on STN  
 ACCESSION NUMBER: 83:15535 USPATFULL  
 TITLE: Hydrogenation of saccharides  
 INVENTOR(S): Arena, Blaise J., Des Plaines, IL, United States  
 PATENT ASSIGNEE(S): UOP Inc., Des Plaines, IL, United States (U.S.  
 corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 4380679		19830419	<--
APPLICATION INFO.:	US 1982-367494		19820412 (6)	<--
DOCUMENT TYPE:	Utility			
FILE SEGMENT:	Granted			
PRIMARY EXAMINER:	Evans, Joseph E.			
LEGAL REPRESENTATIVE:	Hoatson, Jr., James R., Nelson, Raymond H., Page, II, William H.			
NUMBER OF CLAIMS:	13			
EXEMPLARY CLAIM:	1			
LINE COUNT:	560			

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Saccharides such as glucose, fructose, starch, etc. may be hydrogenated by treatment with hydrogen in the presence of a catalyst which comprises a metal of Group VIII of the Periodic Table composited on a support comprising a carbonaceous pyropolymer possessing recurring units containing at least carbon and hydrogen atoms at a temperature in the range of from about 90° to about 150° C. and a pressure in the range of from about 500 to about 3000 psi to obtain polyols. In such a manner, glucose may be hydrogenated to sorbitol and mannitol.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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 YOU HAVE REQUESTED DATA FROM FILE 'WPIX, EMBASE, USPATFULL, PCTFULL, HCPLUS' -  
 CONTINUE? (Y)/(N):y

YOU HAVE REQUESTED DATA FROM 5 ANSWERS - CONTINUE? Y/(N):y

L160 ANSWER 81 OF 85 PCTFULL COPYRIGHT 2004 Univentio on STN  
 ACCESSION NUMBER: 2002047806 PCTFULL ED 20020709 EW 200225  
 TITLE (ENGLISH): METHODS AND APPARATUS FOR THE OXIDATION OF  
**GLUCOSE MOLECULES**  
 TITLE (FRENCH): METHODES ET APPAREIL D'OXYDATION DE MOLECULES DE  
**GLUCOSE**  
 INVENTOR(S): CHAN,, Kwok-Yu, Flat A, 15th Floor, Block 1, Pine  
 Court, 23 Sha Wan Drive, Pokfulam, Hong Kong, CN;  
 ZHANG,, Xin, Room B14-501, 243 University Road, 515063  
 Shantou, Guangdong, CN;  
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 TSEUNG,, Alfred C. C., 60 Grove Avenue, London N10 2AN,  
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 SHEN,, Peikang, Room 303, Block 17, 84 Wen Yi Road,  
 Hangzhou, CN;  
 YOU,, Jinkua, 140-701 Hu Bian South Road, 361004

PATENT ASSIGNEE(S) : Xiamen, CN  
 THE UNIVERSITY OF HONG KONG, Pokfulam Road, Hong Kong,  
 CN [CN, CN]  
 AGENT : XU, Xun\$, SHANGHAI PATENT & TRADEMARK LAW OFFICE, 435  
 Guiiping Road, Caohejing Hi-Tech Park, 200233 Shanghai\$,  
 CN  
 LANGUAGE OF FILING: English  
 LANGUAGE OF PUBL.: English  
 DOCUMENT TYPE: Patent  
 PATENT INFORMATION:

NUMBER	KIND	DATE
WO 2002047806	A1	20020620

## DESIGNATED STATES

W: CN  
 RW (EPO) : AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE  
 TR

APPLICATION INFO.: WO 2001-CN1619 A 20011213  
 PRIORITY INFO.: US 2000-60/255,608 20001214

ABEN A **catalyst** comprising Pt-Co alloy, or Pt  
 -Co-Sn alloy or Pt-Co<sub>m</sub>O<sub>n</sub> mixed  
 metal oxides is disclosed to be used as a **catalyst** for the  
 direct electrochemical **oxidation**  
 of **glucose** or other simple sugars and carbohydrates at room  
 temperature. The  
**catalyst** can be supported on metal electrodes, graphite  
 electrodes, porous carbon  
 electrodes, or gas diffusion electrodes. An electrode containing this  
**catalyst**  
 will be used as the key component in a direct **glucose**-air fuel  
 cell operating in  
 alkaline media with a good room temperature performance. This  
**catalyst** can also  
 be applied as a key electrode material in a **glucose** sensor to  
 detect **glucose** concentration  
 in neutral or alkaline medium. The preparation method of the  
**catalyst**, optimum  
 composition, and results of **glucose** sensor and **glucose**  
 fuel cell applications are  
 disclosed.

ABFR L'invention concerne un **catalyseur** comprenant un alliage  
 Pt-Co, ou un alliage  
 Pt-Co-Sn ou des oxydes métalliques à mélange Pt  
 -Co<sub>m</sub>O<sub>n</sub> à utiliser en tant que **catalyseur** pour l'oxydation  
 électrochimique directe  
 de **glucose** ou d'autres sucres et glucides simples à  
 température ambiante.  
 Le **catalyseur** peut être porté sur des électrodes métalliques,  
 des électrodes en graphite, des électrodes en carbone poreux ou des  
 électrodes à diffusion de gaz. Une électrode contenant ce  
**catalyseur**  
 sera utilisée en tant que constituant clé dans une pile à combustible  
 à **glucose**-air directe fonctionnant en milieux alcalins avec un  
 bon rendement  
 à température ambiante. Ce **catalyseur** peut aussi être appliqué  
 en tant que matériau clé d'électrode dans un détecteur  
 de **glucose** afin de détecter la concentration de  
**glucose** en milieu neutre  
 ou alcalin. L'invention concerne également le procédé

de preparation du **catalyseur**, d'une composition optimale ainsi que les résultats d'applications dans un détecteur de **glucose** et une pile à combustible à **glucose**.

L160 ANSWER 82 OF 85 PCTFULL COPYRIGHT 2004 Univentio on STN  
 ACCESSION NUMBER: 2002028528 PCTFULL ED 20020627 EW 200215  
 TITLE (ENGLISH): SUPPORTED **CATALYST** CONSISTING OF METAL OF THE  
**PLATINUM** GROUP AND OBTAINED BY MEANS OF  
 CONTROLLED ELECTROLESS DEPOSITION  
 TITLE (FRENCH): **CATALYSEUR EN METAL DU GROUPE DU PLATINE SUR**  
 SUPPORT, OBTENU PAR DEPOT SANS COURANT CONTROLE  
 TITLE (GERMAN): GETRAEGERTER, DURCH KONTROLIERTE STROMLOSE ABSCHEIDUNG  
 ERHAEELTLICHER PLATINMETALL-KATALYSATOR  
 INVENTOR(S): BUTZ, Thomas, Welserstrasse 25a, 67063 Ludwigshafen, DE  
 [DE, DE];  
 JUNICKE, Henrik, Friedrichsplatz 8, 68165 Mannheim, DE  
 [DE, DE]  
 PATENT ASSIGNEE(S): BASF AKTIENGESELLSCHAFT, 67056 Ludwigshafen, DE [DE,  
 DE], for all designates States except US;  
 BUTZ, Thomas, Welserstrasse 25a, 67063 Ludwigshafen, DE  
 [DE, DE], for US only;  
 JUNICKE, Henrik, Friedrichsplatz 8, 68165 Mannheim, DE  
 [DE, DE], for US only  
 AGENT: KINZEBACH, Werner\$, Ludwigsplatz 4, 67059  
 Ludwigshafen\$, DE  
 LANGUAGE OF FILING: German  
 LANGUAGE OF PUBL.: German  
 DOCUMENT TYPE: Patent  
 PATENT INFORMATION:  

	NUMBER	KIND	DATE
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	WO 2002028528	A1	20020411

 DESIGNATED STATES  
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR  
 CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID  
 IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD  
 MG MK MN MW MX MZ NO NZ PH PL PT RO RU SD SE SG SI SK  
 SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW  
 GH GM KE LS MW MZ SD SL SZ TZ UG ZW  
 RW (ARIPO): AM AZ BY KG KZ MD RU TJ TM  
 RW (EAPO): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE  
 TR  
 RW (OAPI): BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG  
 APPLICATION INFO.: WO 2001-EP11346 A 20011001  
 PRIORITY INFO.: DE 2000-100 48 844.7 20001002  
 ABEN The invention relates to a supported **catalyst** consisting of metal of the **platinum** group. Said **catalyst** can be obtained by means of controlled electroless deposition of at least one metal of the **platinum** group from a precipitation solution containing i) at least one homogeneously dissolved compound consisting of metal of the **platinum** group, ii) a reducing agent, and iii) at least one collagen selected from iopolysaccharides and heteropolysaccharides of niobium, tantalum, molybdenum, tungsten and vanadium or the salts of the same. The invention also relates to a method for hydrogenating inorganic or organic compounds using the **catalyst** which is produced by means of controlled electroless deposition, especially for the direct synthesis of hydrogen peroxide.  
 ABFR L'invention concerne un **catalyseur en métal du groupe du platine**, obtenu par dépôt sans courant contrôle d'au moins un métal du groupe du platine provenant d'une solution de précipitation qui contient

i) au moins un compose de metal du groupe du platine dissous de maniere homogene ; ii) un agent de **reduction** et iii) au moins un collagene selectionne parmi des isopolyacides et des heteropolyacides de niobium, de tantale, de molybdene, de tungstene et de vanadium ou leurs sels. L'invention concerne en outre un procede d'**hydrogenation** de composes inorganiques ou organiques a l'aide du **catalyseur** produit par depot sans courant controle, s'utilisant notamment dans la synthese directe de peroxyde d'hydrogene.

**ABDE** Die Erfindung betrifft einen getraegerten Platinmetall-Katalysator, erhaeltlich durch kontrollierte stromlose Abscheidung wenigstens eines Platinmetalls aus einer Abscheidungsloesung, die i) wenigstens eine homogen geloeste Platinmetallverbindung, ii) ein Reduktionsmittel und iii) wenigstens ein unter Isopolysaeuren und Heteropolysaeuren von Niob, Tantal, Molybdaen, Wolfram und Vanadium oder deren Salze ausgewaehltes Kontrollagens enthaelt. Die Erfindung betrifft außerdem ein Verfahren zur Hydrierung anorganischer oder organischer Verbindungen unter Verwendung des durch die kontrollierte stromlose Abscheidung hergestellten Katalysators, insbesondere zur Direktsynthes von Wasserstoffperoxid.

L160 ANSWER 83 OF 85 PCTFULL COPYRIGHT 2004 Univentio on STN  
 ACCESSION NUMBER: 2002028527 PCTFULL ED 20020627 EW 200215  
 TITLE (ENGLISH): METHOD FOR PRODUCING CATALYSTS CONSISTING OF  
 METAL OF THE **PLATINUM** GROUP BY MEANS OF  
 ELECTROLESS DEPOSITION AND THE USE THEREOF FOR THE  
 DIRECT SYNTHESIS OF HYDROGEN PEROXIDE  
 TITLE (FRENCH): PROCEDE DE PRODUCTION DE **CATALYSEURS** EN METAL  
 DU GROUPE DU PLATINE PAR DEPOT SANS COURANT ET LEUR  
 UTILISATION POUR LA SYNTHESE DIRECTE DE PEROXYDE  
 D'HYDROGENE  
 TITLE (GERMAN): VERFAHREN ZUR HERSTELLUNG VON PLATINMETALL-  
 KATALYSATOREN DURCH STROMLOSE ABSCHEIDUNG UND DEREN  
 VERWENDUNG ZUR DIREKTSYNTHESE VON WASSERSTOFFPEROXID  
 INVENTOR(S): FISCHER, Martin, Elbinger Weg 1, 67071 Ludwigshafen, DE  
 [DE, DE];  
 BUTZ, Thomas, Ida-Dehmel-Ring 6a, 68309 Mannheim, DE  
 [DE, DE]  
 PATENT ASSIGNEE(S): BASF AKTIENGESELLSCHAFT, 67056 Ludwigshafen, DE [DE,  
 DE], for all designates States except US;  
 FISCHER, Martin, Elbinger Weg 1, 67071 Ludwigshafen, DE  
 [DE, DE], for US only;  
 BUTZ, Thomas, Ida-Dehmel-Ring 6a, 68309 Mannheim, DE  
 [DE, DE], for US only  
 AGENT: KINZEBACH, Werner\$, Ludwigplatz 4, 67059  
 Ludwigshafen\$, DE  
 LANGUAGE OF FILING: German  
 LANGUAGE OF PUBL.: German  
 DOCUMENT TYPE: Patent  
 PATENT INFORMATION:  

	NUMBER	KIND	DATE
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	WO 2002028527	A1	20020411

 DESIGNATED STATES  
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR  
 CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID  
 IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD  
 MG MK MN MW MX MZ NO NZ PH PL PT RO RU SD SE SG SI SK  
 SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW  
 RW (ARIPO): GH GM KE LS MW MZ SD SL SZ TZ UG ZW  
 RW (EAPO): AM AZ BY KG KZ MD RU TJ TM

RW (EPO) : AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE  
TR  
RW (OAPI) : BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG  
APPLICATION INFO.: WO 2001-EP11347 A 20011001  
PRIORITY INFO.: DE 2000-100 48 844.7 20001002  
ABEN The invention relates to a method for producing **catalysts** by depositing at least one metal of the **platinum** group on a non-porous, non-metallic carrier without using an electric current. The invention also relates to the **catalysts** obtained according to the inventive method, the use of said **catalysts** for synthesising hydrogen peroxide from the elements and for **hydrogenating** organic compounds, and a method for producing hydrogen peroxide using said **catalysts**.  
ABFR L'invention concerne un procede permettant de produire des **catalyseurs** par depot sans courant d'au moins un metal du groupe du platine sur un support non metallique non poreux, les **catalyseurs** obtenus a l'aide dudit procede, l'utilisation des **catalyseurs** pour la synthese de peroxyde d'hydrogène a partir des elements, afin d'hydrogerner des composes organiques. L'invention concerne en outre un procede permettant de produire du peroxyde d'hydrogène a l'aide desdits **catalyseurs**.  
ABDE Die vorliegende Erfindung betrifft ein Verfahren zur Herstellung von Katalysatoren durch stromloses Abscheiden wenigstens eines Platinmetalls auf einem nichtporösen nichtmetallischen Traeger, die nach diesem Verfahren erhaltenen Katalysatoren, die Verwendung der Katalysatoren zur Synthese von Wasserstoffperoxid aus den Elementen, zur Hydrierung von organischen Verbindungen sowie ein Verfahren zur Herstellung von Wasserstoffperoxid unter Verwendung dieser Katalysatoren.

L160 ANSWER 84 OF 85 PCTFULL COPYRIGHT 2004 Univentio on STN  
ACCESSION NUMBER: 1999008650 PCTFULL ED 20020515  
TITLE (ENGLISH) : USE OF ASCORBIC ACID IN PERMANENT WAVING AND HAIR COLORING COMPOSITIONS  
TITLE (FRENCH) : UTILISATION D'ACIDE ASCORBIQUE POUR DES COMPOSITIONS DESTINEES AUX PERMANENTES ET A LA COLORATION DES CHEVEUX  
INVENTOR(S) : SCHULTZ, Thomas;  
FADEEVA, Natalya;  
CANNELL, David, W.  
PATENT ASSIGNEE(S) : L'OREAL  
LANGUAGE OF PUBL.: English  
DOCUMENT TYPE: Patent  
PATENT INFORMATION:

NUMBER	KIND	DATE
WO 9908650	A2	19990225

DESIGNATED STATES  
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE  
ES FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC  
LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU  
SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW GH GM  
KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE  
CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ  
CF CG CI CM GA GN GW ML MR NE SN TD TG  
APPLICATION INFO.: WO 1998-IB1529 A 19980818  
PRIORITY INFO.: US 1997-08/915,320 19970820  
ABEN A novel oxidizing system comprising ascorbic acid, at least one metal ion and an oxidizing agent capable of generating an oxidizing potential of from about 100 to about 500 millivolts at a pH

ranging from about 2 to about 10. The oxidizing system can be used in quenching or neutralizing permanent wave processes and in developing oxidative hair color.

ABFR Nouveau systeme d'oxydation qui comporte de l'acide ascorbique, au moins un ion metallique et un agent oxydant capable de produire un potentiel d'oxydation d'environ 100 a environ 500 millivolts a un pH allant d'environ 2 a environ 10. Ledit systeme d'oxydation peut etre utilise pour stopper ou neutraliser les processus de permanente, et pour obtenir une couleur de cheveux par oxydation.

L160 ANSWER 85 OF 85 PCTFULL COPYRIGHT 2004 Univentio on STN  
 ACCESSION NUMBER: 1998051811 PCTFULL ED 20020514  
 TITLE (ENGLISH): PROCESS FOR THE SELECTIVE OXIDATION OF ORGANIC COMPOUNDS  
 TITLE (FRENCH): PROCEDE D'OXYDATION SELECTIVE DE COMPOSES ORGANIQUES  
 INVENTOR(S): D'AMORE, Michael, Brian  
 PATENT ASSIGNEE(S): E.I. DU PONT DE NEMOURS AND COMPANY;  
 D'AMORE, Michael, Brian  
 LANGUAGE OF PUBL.: English  
 DOCUMENT TYPE: Patent  
 PATENT INFORMATION:

NUMBER	KIND	DATE
WO 9851811	A1	19981119

## DESIGNATED STATES

W: JP US AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL  
 PT SE

APPLICATION INFO.: WO 1998-US8882 A 19980512  
 PRIORITY INFO.: US 1997-60/046,709 19970516

ABEN A process for the manufacture of oxygenated organic compounds by employing an **oxidase** to generate H<sub>2</sub>O<sub>2</sub> is disclosed. The generated H<sub>2</sub>O<sub>2</sub> is used to oxidize an oxidizable organic substrate in the presence of a metal-containing **catalyst**. An enzyme system of an insoluble carrier of silicon oxide and an oxide of Ag, Co, Ce, Mn, Fe, Cu, Cr, Ti, V, Mo or W, coupled with an **oxidase** enzyme capable of producing H<sub>2</sub>O<sub>2</sub> when reacted with a hydrogen or an electron donor in the presence of oxygen, is also disclosed.

ABFR L'invention concerne un procede d'elaboration de composes organiques oxygnes par oxydase visant a fournir du H<sub>2</sub>O<sub>2</sub> pour l'oxydation d'un substrat organique oxydable en presence d'un **catalyseur** a base de metal. L'invention concerne aussi un systeme d'enzymes constitue d'un vecteur insoluble d'oxyde de silicium et d'un oxyde de Ag, Co, Ce, Mn, Fe, Cu, Cr, Ti, V, Mo ou W en combinaison avec une oxydase pouvant fournir du H<sub>2</sub>O<sub>2</sub> dans la reaction avec un donneur d'hydrogene ou d'electrons en presence d'oxygen.

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=> => fil zcaplus

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FILE COVERS 1907 - 31 Aug 2004 VOL 141 ISS 10  
FILE LAST UPDATED: 30 Aug 2004 (20040830/ED)

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FILE LAST UPDATED: 30 Aug 2004 (20040830/ED)

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L1	6 SEA FILE=HCAPLUS ABB=ON PLU=ON "CAPAN EMINA"/AU
L2	3 SEA FILE=HCAPLUS ABB=ON PLU=ON ("HAHNLEIN M"/AU OR "HAHNLEIN MARC SASCHA"/AU)
L3	19 SEA FILE=HCAPLUS ABB=ON PLU=ON ("PRUSSE U"/AU OR "PRUSSE ULF"/AU)
L4	152 SEA FILE=HCAPLUS ABB=ON PLU=ON ("VORLOP K"/AU OR "VORLOP K D"/AU OR "VORLOP KLAUS D"/AU OR "VORLOP KLAUS DIETER"/AU)
L5	18 SEA FILE=HCAPLUS ABB=ON PLU=ON "HAJI BEGLI ALIREZA"/AU OR ("BEGLI ALI REZA HAJI"/AU OR "BEGLI ALIREZA HAJI"/AU)
L6	169 SEA FILE=HCAPLUS ABB=ON PLU=ON (L1 OR L2 OR L3 OR L4 OR L5)
L7	89 SEA FILE=HCAPLUS ABB=ON PLU=ON L6 AND ?CATALY?
L8	24 SEA FILE=HCAPLUS ABB=ON PLU=ON L7 AND ?POLYMER?
L9	10 SEA FILE=HCAPLUS ABB=ON PLU=ON L8 AND (?METAL? OR PT OR ?PLATINUM? OR PD OR ?PALLADIUM? OR RH OR ?RODIUM? OR RU OR ?RUTHENIUM? OR CU OR ?COPPER? OR NI OR ?NICKEL?)

=> d que 114

L11	61 SEA FILE=PASCAL ABB=ON PLU=ON (CAPAN, E? OR HAHNLEIN, M? OR PRUSSE, U? OR VORLOP, K? OR HAJI BEGLI, A? OR BEGLI, H?)/AU
L12	26 SEA FILE=PASCAL ABB=ON PLU=ON L11 AND ?CATALY?
L13	7 SEA FILE=PASCAL ABB=ON PLU=ON L12 AND ?POLYMER?
L14	2 SEA FILE=PASCAL ABB=ON PLU=ON L13 AND (?METAL? OR PT OR ?PLATINUM? OR PD OR ?PALLADIUM? OR RH OR ?RODIUM? OR RU OR ?RUTHENIUM? OR CU OR ?COPPER? OR NI OR ?NICKEL?)

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PROCESSING COMPLETED FOR L9

PROCESSING COMPLETED FOR L14

L15	10 DUP REM L9 L14 (2 DUPLICATES REMOVED) ANSWERS '1-10' FROM FILE HCAPLUS
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=> d l15 ibib abs  
YOU HAVE REQUESTED DATA FROM FILE 'HCAPLUS' - CONTINUE? (Y)/N:y

L15 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1  
ACCESSION NUMBER: 2002:175812 HCAPLUS  
DOCUMENT NUMBER: 137:94751  
TITLE: A novel strategy for heterogenisation of homogeneous  
and colloidal chiral **catalysts** and their  
application in enantioselective reactions  
AUTHOR(S): Kockritz, A.; Bischoff, S.; Morawsky, V.; **Prusse,**  
**U.; Vorlop, K.-D.**  
CORPORATE SOURCE: Berlin-Adlershof e.V. (ACA), Institute for Applied  
Chemistry, Berlin, D-12489, Germany  
SOURCE: Journal of Molecular Catalysis A: Chemical (2002),  
180(1-2), 231-243  
CODEN: JMCCF2; ISSN: 1381-1169  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB For the heterogenization of chiral **catalysts**, a novel method has  
been developed and applied to different enantioselective reactions. The  
new heterogenization method is based on the three-dimensional entrapment  
of **catalysts** by electrostatic attraction between a  
polyelectrolyte and an oppositely charged **catalyst**. An easy  
preparation procedure, a simple separation and a good retention of the active  
**metal** in the **polymeric** material and a high long-term  
stability of the entrapped **catalyst** are the significant features  
of this new heterogenization method. Applying these entrapped  
**catalysts** in the hydroformylation of vinyl acetate, an  
enantiomeric excess (ee) of 39% could be obtained with a rhodium  
diphosphine complex. The activities and selectivities in the  
hydrogenation of di-Me itaconate have been found to be competitive with  
homogeneous **catalysts**. A change in the direction of  
enantioselectivity has been observed by using entrapped **Ru**  
**catalysts** in different solvents. For the entrapment of chirally  
stabilized **Pt**-colloids used in the enantioselective  
hydrogenation of Et pyruvate, different polyanions have been found to be  
suitable. A constant enantioselectivity and a good activity during 25  
hydrogenation cycles were obtained employing alginate-entrapped **Pt**  
-colloids.  
REFERENCE COUNT: 54 THERE ARE 54 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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 LAST RELOADED: Aug 27, 2004 (20040827/UP).

=> d 115 ibib abs 2-  
 YOU HAVE REQUESTED DATA FROM FILE 'HCAPLUS' - CONTINUE? (Y)/N:y

YOU HAVE REQUESTED DATA FROM 9 ANSWERS - CONTINUE? Y/(N):y

L15 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2  
 ACCESSION NUMBER: 1997:144493 HCAPLUS  
 DOCUMENT NUMBER: 126:255861  
 TITLE: Encapsulation of microscopic **catalysts** in  
**polymer** network gels  
 AUTHOR(S): Pruesse, Ulf; Hoerold, Sebastian; **Vorlop, Klaus**  
**Dieter**  
 CORPORATE SOURCE: Institut Technische Chemie, Technische Universitaet  
 Braunschweig, Braunschweig, D-38106, Germany  
 SOURCE: Chemie-Ingenieur-Technik (1997), 69(1/2), 100-103  
 CODEN: CITEAH; ISSN: 0009-286X  
 PUBLISHER: VCH  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German  
 AB The **catalytic** reduction of nitrite (model reaction) at **Pd**  
**/Al<sub>2</sub>O<sub>3</sub>** **catalysts** encapsulated in hydrogels of poly(vinyl alc.)  
 was investigated. The **catalytic** activity of encapsulated  
**Pd/Al<sub>2</sub>O<sub>3</sub>** (particle size 2 mm) was significantly lower than that of  
 powdered **Pd/Al<sub>2</sub>O<sub>3</sub>** (particle size 2-3  $\mu$ m) due to diffusion  
 limitation. The selectivity of encapsulated **Pd/Al<sub>2</sub>O<sub>3</sub>** increased  
 with increasing buffering capacity of the reaction solution An encapsulated  
 colloidal **Pd catalyst** exhibited a higher activity and  
 selectivity than encapsulated powdered **catalyst**. Under continuous  
 operation conditions (15 d) no washout of the **Pd** colloid was  
 observed

L15 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 2004:246919 HCAPLUS  
 DOCUMENT NUMBER: 140:286531  
 TITLE: hydrogenated condensed palatinose preparation and use in  
 food and drug manufacture  
 INVENTOR(S): **Haji, Begli Alireza**; Klingenberg, Michael;  
 Kunz, Markwart; Vogel, Manfred  
 PATENT ASSIGNEE(S): Suedzucker Aktiengesellschaft Mannheim/Ochsenfurt,  
 Germany  
 SOURCE: Ger. Offen., 44 pp., Addn. to Ger. 10,262,005.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10242062	A1	20040325	DE 2002-10242062	20020911
DE 10262005	A1	20040325	DE 2002-10262005	20020911
WO 2004031202	A2	20040415	WO 2003-EP9725	20030902

WO 2004031202 A3 20040506  
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,  
 CO, CR, CU, CZ, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM,  
 HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,  
 LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG,  
 PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,  
 TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,  
 KZ, MD, RU, TJ  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG,  
 CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC,  
 NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
 GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: DE 2002-10262005 A2 20020911  
 DE 2002-10242062 A2 20020911

AB The present invention concerns procedures for the production of condensed palatinose in hydrogenated form and use of the hydrogenated condensed palatinose in manufacture of food and drugs.

L15 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:750499 HCAPLUS

DOCUMENT NUMBER: 137:281017

TITLE: Manufacture and use of transition metal complex catalysts for heterogeneous catalysis

INVENTOR(S): Koeckritz, Angela; Bischoff, Stefan; Kant, Michael;  
 Luecke, Bernhard; Vorlop, Klaus-Dieter;

Pruesse, Ulf; Morawsky, Viola

PATENT ASSIGNEE(S): Institut fuer Angewandte Chemie Berlin-Adlershof e.V.,  
 Germany

SOURCE: Ger. Offen., 8 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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DE 10112358	A1	20021002	DE 2001-10112358	20010308
DE 10112358	C2	20030410		

PRIORITY APPLN. INFO.: DE 2001-10112358 20010308

OTHER SOURCE(S): MARPAT 137:281017

AB A general method is provided for heterogenization of transition metal catalysts in liquid-phase reactions. The title catalysts with reduced active metal leaching, increased activity and improved selectivity comprise (a) a transition metal complex (general structure given), (b) a surfactant that can be attached to a ionic polymer carrier, and (c) soluble ionic polymer. The catalysts are manufactured by adding the solns. of preformed transition metal complex to a polyelectrolyte solution together with a surfactant to produce a mixed polymer salt which is converted into a defined dry form or applied on a substrate and dried. For example, adding 0.6 mmol [RuCl<sub>2</sub>(p-cymene)]<sub>2</sub> to a solution of 0.12 mmol BINAP-4,4'-(P(O)(OH)<sub>2</sub>)<sub>2</sub> [BINAP = 2,2'-bis(diphenylphosphino)-1,1'-binaphthyl] in 5 mL EtOH, stirring the mixture to convert the Ru precursor, adding 1.26 mmol decanephosphonic acid solution in 5 mL H<sub>2</sub>O and 1,5 mL 2N NaOH to the above mixture, then adding a solution of 4 mmol poly(diallyldimethylammonium chloride) in 3 mL H<sub>2</sub>O, stirring the whole for 1 h and depositing the resulting viscous liquid to a polypropylene plate and drying for 24 h in an inert atmospheric, gave beads of a title catalyst

. A solution of 280 mg di-Me itaconate in 10 mL EtOH was hydrogenated for 2 h at 60° and 20 bar H in the presence 310 mg of the above catalyst to give 100 conversion with enantiomeric excess 89%.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 5 OF 10 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 2002:834091 HCPLUS  
 DOCUMENT NUMBER: 137:358619  
 TITLE: Caged catalysts. Strategies for making catalysts heterogeneous  
 AUTHOR(S): Wittlich, Peter; Prusse, Ulf; Vorlop, Klaus-Dieter  
 CORPORATE SOURCE: Institut fuer Technologie und Biosystemtechnik, Bundesforschungsanstalt fuer Landwirtschaft, Braunschweig, Germany  
 SOURCE: Process (Wuerzburg, Germany) (2002), 9(9), 38-40  
 CODEN: PMCTFH; ISSN: 0946-2856  
 PUBLISHER: Vogel Life Science Medien GmbH & Co. KG  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German

AB The heterogenization of (bio)catalysts using LentiKats and the JetCutter technol. is described. Polyvinyl alc. is used as a hydrogel matrix for the manufacture of the lens-shaped particles (so called LentiKats). This principle was used for homogeneous metal complex catalysts: chiral complex catalyst with different ionic functionalizations and polymer salts (chiral metal colloids with countercharged polyelectrolytes) were successfully heterogenized in LentiKats. The production of spherical particles for use in fixed and fluidized bed reactors can be carried out with the JetCutter. A catalyst-loaded fluid is expressed through a special nozzle. The jet is cut into cylindrical segments by a rotating cutter which then spontaneously form spherical particles on account of their surface tension. These particles are caught and hardened.

L15 ANSWER 6 OF 10 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 2000:666737 HCPLUS  
 DOCUMENT NUMBER: 133:254142  
 TITLE: Catalytic method for modifying carbohydrates, alcohols, aldehydes or polyhydroxy compounds  
 INVENTOR(S): Capan, Emine; Hahnlein, Marc Sascha; Prusse, Ulf; Vorlop, Klaus-Dieter; Haji Begli, Alireza  
 PATENT ASSIGNEE(S): Sudzucker Aktiengesellschaft, Germany  
 SOURCE: PCT Int. Appl., 45 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000055165	A1	20000921	WO 2000-EP2351	20000316
W: AU, CA, IL, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
DE 19911504	A1	20001019	DE 1999-19911504	19990316
EP 1165580	A1	20020102	EP 2000-925117	20000316

EP 1165580	B1	20030702		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
AU 747812	B2	20020523	AU 2000-43953	20000316
AT 244256	E	20030715	AT 2000-925117	20000316
PT 1165580	T	20031128	PT 2000-925117	20000316
ES 2202115	T3	20040401	ES 2000-925117	20000316
US 2003139594	A1	20030724	US 2003-340913	20030110
US 2004002597	A1	20040101	US 2003-340901	20030110
PRIORITY APPLN. INFO.:			DE 1999-19911504	A 19990316
			WO 2000-EP2351	W 20000316
			US 2001-936891	A3 20011019

AB Industrial conversion of the title compds. in aqueous phase is carried out in the presence of **metal catalysts** consisting of **polymer**-stabilized nanoparticles. A **catalyst** of this type is not deactivated by the conversion reaction as long as the stabilizing interaction between the **polymer** and the nanoparticles is maintained. For example, activity of an Al<sub>2</sub>O<sub>3</sub>-supported, poly(vinylpyrrolidone)-stabilized Pt colloid **catalyst** (preparation given) in oxidation of sorbose with O remained unchanged after 10 repeated expts. whereas the activity of a customary Al<sub>2</sub>O<sub>3</sub>-supported Pt **catalyst** decreased to .apprx.35% after 10 runs.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 7 OF 10 HCPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1998:150064 HCPLUS  
 DOCUMENT NUMBER: 128:181165  
 TITLE: New jet separation process for the manufacture of spherical particles from viscous **polymer** solutions  
 AUTHOR(S): Pruesse, Ulf; Fox, Barbara; Kirchhoff, Martina; Bruske, Frank; Breford, Juergen; Vorlop, Klaus Dieter  
 CORPORATE SOURCE: Institut Technologie, FAL, Braunschweig, D-38166, Germany  
 SOURCE: Chemie-Ingenieur-Technik (1998), 70(1-2), 103-107  
 CODEN: CITEAH; ISSN: 0009-286X  
 PUBLISHER: Wiley-VCH Verlag GmbH  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German  
 AB A modified Freeze-Thaw-method for manufacturing spherical particles (diameter <1.5 mm) from high-viscous fluids like polyvinyl alc. solution (PVAL) was developed for immobilizing microorganisms or for encapsulating precious **metal catalysts**. Principle and operation of the encapsulation process, modeling of the cutting process, and determination of particle size distribution of the manufactured spherical particles are described. Spherical particles with diams. ≈ 0,3 mm and viscosities ≤200 mPas were manufactured from PVAL solns.

L15 ANSWER 8 OF 10 HCPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1998:665427 HCPLUS  
 DOCUMENT NUMBER: 130:29719  
 TITLE: Preparation of microscopic **catalysts** and colloids for **catalytic** nitrate and nitrite reduction and their use in a hollow fiber dialyzer loop reactor  
 AUTHOR(S): Hahnlein, M.; Prusse, U.; Daum, J.; Morawsky, V.; Kroger, M.; Schnabel,

CORPORATE SOURCE: M.; Vorlop, K.-D.  
 Institute of Technology, Federal Agricultural Research  
 Centre (FAL), Braunschweig, 38116, Germany  
 SOURCE: Studies in Surface Science and Catalysis (1998),  
 118(Preparation of Catalysts VII), 99-107  
 CODEN: SSCTDM; ISSN: 0167-2991  
 PUBLISHER: Elsevier Science B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Microscopic catalysts and polymer stabilized colloids  
 were tested in catalytic nitrate and nitrite reduction. The preparation  
 conditions for the bimetallic catalysts tested in  
 nitrate reduction strongly influence the catalytic properties. An  
 influence of the stabilizing polymers used for the preparation of the  
 colloidal sols on the catalytic properties was found, too. For  
 continuous flow expts., both microscopic catalysts and colloids  
 were tested in the hollow fiber dialyzer loop reactor.  
 REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 9 OF 10 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1998:771879 HCPLUS  
 DOCUMENT NUMBER: 130:168754  
 TITLE: Development of some processes for the production of a  
 porous and highly elastic carrier for the  
 bioconversion of raw materials in aerobic processes  
 AUTHOR(S): Bettin, A.; Hansen, J.; Breford, J.; Vorlop, K.  
 -D.  
 CORPORATE SOURCE: Institut Technologie, Bundesforschungsanstalt  
 Landwirtschaft, Braunschweig, 38116, Germany  
 SOURCE: Schriftenreihe "Nachwachsende Rohstoffe" (1998),  
 10(Biokonversion nachwachsender Rohstoffe), 89-97  
 CODEN: SNROFF  
 PUBLISHER: Landwirtschaftsverlag  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German  
 AB A porous and elastic carrier for the immobilization of microorganisms and  
 enzymes used in aerobic biocatalytic processes, which allows  
 high permeation of O<sub>2</sub> throughout the suspension, was produced by the  
 Pt-catalyzed addition reaction of polymethylhydrosiloxane  
 and polydimethylsiloxane. This porous carrier allowed the 2- to 3-fold  
 higher production of dihydroxyacetone from glycerol by Gluconobacter oxydans  
 than did Aquacel as a carrier.  
 REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 10 OF 10 HCPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1989:188489 HCPLUS  
 DOCUMENT NUMBER: 110:188489  
 TITLE: Reversibly precipitable water-soluble polymer  
 -biocatalyst conjugates and their use  
 INVENTOR(S): Vorlop, Klaus Dieter; Steinke, Kerstin;  
 Wullbrandt, Dieter; Schlingmann, Merten  
 PATENT ASSIGNEE(S): Hoechst A.-G., Fed. Rep. Ger.  
 SOURCE: Ger. Offen., 15 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3700308	A1	19880721	DE 1987-3700308	19870108
EP 277473	A2	19880810	EP 1988-100006	19880104
EP 277473	A3	19910911		
EP 277473	B1	19950412		
R: AT, BE, CH, DE, FR, GB, IT, LI, NL, SE				
AT 121103	E	19950415	AT 1988-100006	19880104
DK 8800052	A	19880709	DK 1988-52	19880107
JP 63175003	A2	19880719	JP 1988-791	19880107
CA 1336893	A1	19950905	CA 1988-556060	19880107
US 5310786	A	19940510	US 1993-106696	19930816
PRIORITY APPLN. INFO.:				
			DE 1987-3700308	19870108
			US 1988-141126	19880106
			US 1990-529723	19900529
			US 1991-683495	19910410

**AB** Water-soluble conjugates of polymers and catalytically active materials which may be reversibly precipitated from solution by increased

temperature or salt concns. are prepared. A copolymer containing epoxide groups was prepared by reaction of N-isopropylacrylamide 5.4 and glycidylmethacrylate 0.29 g in the presence of ammonium peroxodisulfite and Na thiosulfite for 40 min at 4°. The copolymer, containing 22 weight% epoxide groups, was incubated with 0.5 g trypsin for 24 h at 15°. The conjugated enzyme had an initial activity of .apprx.200 units/g polymer which decreased to .apprx.120 units/g after 6 pptns. for solution

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